SHOUT
SHARE
IT

ZS71
Bird Section

BULLETIN

OF THE

BRITISH
ORNITHOLOGISTS' CLUB

EDITED BY

JOHN J. YEALLAND

BRITISH MUSEUM NATURAL HISTORY

Volume 82

1962

PRICE FOUR SHILLINGS

PREFACE

THE MEETINGS held during 1962 have been well attended and the assembled company addressed on a variety of subjects. A total of 326 members, associates and guests were present.

Papers for publication in the *Bulletin* continue to cover a wide range of ornithological matters and contributors are warmly thanked for their interest and support.

Our gratitude is also due to Mrs. B. P. Hall and to Mr. C. J. O. Harrison for the compilation of the Index of Scientific Names and the Index of Authors.

Our printers, the Caxton and Holmesdale Press have continued their much appreciated co-operation and we are particularly grateful to the Manager, Mr. K. E. Wiltsher.

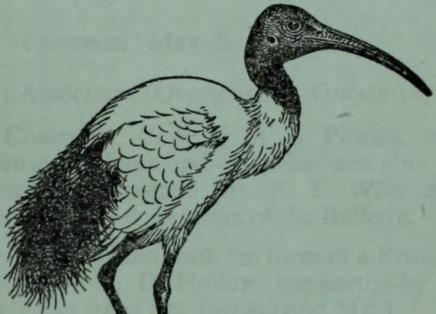
J. J. YEALLAND.

urd Section

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB



Edited by
JOHN J. YEALLAND

Volume 82
No. 1

January
1962

BRITISH MUSEUM NATURAL HISTORY Z D
- 8 JAN 1962
PURCHASED

8 JAN 1962
PURCHASED
BRITISH MUSEUM (NATURAL HISTORY)

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 82

Number 1

Published: 1st January, 1962

The five hundred and ninety-fourth meeting of the Club was held at the Rembrandt Hotel, London, on 19th December, 1961.

Chairman: MRS. B. P. HALL

Members present, 27; Associates (Overseas), 1; Guests 14; Total, 42.

The Club's usual Chairman, Capt. C. R. S. Pitman, was regrettably unable to attend because of illness and his place was ably taken by Mrs. B. P. Hall. The Chairman welcomed Mr. K. E. Wiltsher, Manager of the Caxton and Holmesdale Press, printers of the Bulletin.

The proceedings on this occasion took the form of a British bird "quiz" between teams led by Mr. P. A. D. Hollom, supported by Messrs. Derek Goodwin and D. D. Harber (the Over forties) and Mr. I. J. Ferguson-Lees with Dr. I. C. T. Nisbet and Mr. D. I. M. Wallace (the Under forties).

The last readily available reserves of ornithological knowledge consisted of those (regardless of age) seated at the tables on either side of the dining room and all questions related to birds on the British List, the maximum award of marks being either ten or five according to the question.

The Chairman undertook the difficult task of awarding marks on the basis of the usual criteria—correctness, promptitude of answer, extent to which reserves are called upon and so on. A selection of the questions and answers as set out on the cards are given here.

Mr. Ferguson-Lees' side answered first and the marks awarded are given in parenthesis at the end of each official answer.

Q Name birds of five different families which can excavate their nest-holes in the ground.

A *Sand Martin, Bee-eater, Manx Shearwater, Kingfisher, Puffin.* (8)

Q Name five unquestioned species with the word "blue" in the usual name.

A *Bluethroat, Red-flanked Bluetail, Blue Tit, Blue-cheeked Bee-eater, Blue-winged Teal.* (5)

Q What is the colour of the iris and orbital skin of (a) Stock Dove (b) Turtle Dove (c) Wood Pigeon?

A (*a*) *dark brown; grey.* (*b*) *golden; purple or reddish.* (*c*) *pale yellow or whitish-yellow; grey.* (4)

Q What is the colour of the iris, bill and legs of (a) Little Crake (b) Corncrake?

A (*a*) *iris crimson; bill grass green with grey tip and red at base of upper mandible; legs green.* (*b*) *iris pale brown; bill pale brown or fleshy; legs pale flesh.* (4)

Q Name three species out of the nine mentioned in Voous' Atlas which breed in each of the six continents.

A *Stilt, Oystercatcher, Great White Heron, Barn Owl, Cormorant, Black-winged Kite, Peregrine Falcon, Gull-billed Tern, Roseate Tern.* (5)

Q Name five buntings on the British List whose breeding range extends to the Pacific.

A *Lapland, Reed, Rustic, Yellow-breasted, Snow.* (5)

Q Name eight waders of the Charadriidae or Scolopacidae you would expect to see in County Kerry in late June.

A *Lapwing, Ringed Plover, Golden Plover, Snipe, Woodcock, Curlew, Common Sandpiper, Redshank.* (8)

Q What owls and birds of prey, other than falcons, breed in Ireland?

A *Golden Eagle, Common Buzzard, Sparrow Hawk, Hen Harrier, Barn Owl, Long-eared Owl.* (9)

Q If you see a Brent Goose being shot, in what circumstances is it your duty to take action, and what action?

A *All circumstances. Get witness; shooter's name and address; inform police and comply with their requests in support of prosecution.* (10)

Q Name five birds that have a practical use around the house. (Chairman gives example, viz. Roller)

A *Nutcracker, Knot, Skua, Yellowhammer, Petrel. Also acceptable Shag (tobacco) and Stork (margarine). Shoveler suggested and passed, but Stock-pot Dove rejected.* (5)

Q For which of the following species is the British Isles the southern European limit for breeding? Red-necked Phalarope, Ptarmigan, Blackcock, Black Guillemot, Red-throated Diver, Fulmar.

A *Red-necked Phalarope, Black Guillemot, Fulmar.* (8)

Q In how many counties had the Little Ringed Plover bred by 1959 (last census)? What was the total population then to the nearest ten pairs?

A (*a*) 24 (*b*) 100 (7)

Q Give approximate dates for the following Kittiwake activities in breeding grounds in south-western England and Wales, (a) first return to breeding grounds, (b) first eggs, (c) first chicks, (d) last birds to leave home waters.

A (*a*) *end of December*, (*b*) *last week of May*, (*c*) *last week of June*, (*d*) *third week of September.* (0)

Q Give approximate dates for the following Puffin activities in breeding grounds in south-western England and Wales, (a) first return to breeding grounds, (b) first eggs, (c) first chicks, (d) last birds to leave home waters.

A (*a*) *end of March*, (*b*) *beginning of May*, (*c*) 38 *days later—mid-June*, (*d*) *first week of August.* (4)

Q Which of the following waders have no white wing-bar? Black-tailed Godwit, Bar-tailed Godwit, Curlew Sandpiper, Green Sandpiper, Greenshank, Spotted Redshank?

A *Bar-tailed Godwit, Green Sandpiper, Greenshank, Spotted Redshank.* (8)

Q Which of the following warblers have a conspicuous eye-stripe? Marsh, Sedge, Moustached, Garden, Reed, Wood.

A *Sedge, Moustached, Wood.* (10)

Q In what year and which county was the last Great Auk captured alive in the British Isles? Where and when did the final extinction of the species take place?

A *Waterford* 1834 (*St. Kilda about* 1840 *also acceptable, but the bird was killed as a witch*) *Iceland* 1844. (8)

Q In what year and in which county (a) was the Great Bustard last recorded breeding in Great Britain; (b) did the last indigenous birds die?

A (*a*) *Suffolk* 1832, (*b*) *Norfolk* 1845. (3)

Q In which of the following species is incubation by the hen only? Wood Warbler, Reed Warbler, Blackcap, Whitethroat, Lesser Whitethroat, Willow Warbler.

A *Wood Warbler and Willow Warbler* (9)

Q What materials would you expect to find in the nests of (a) Crossbill (b) Meadow Pipit (c) Dipper (d) Stone Curlew?

A (*a*) *pine twigs, grasses, wool, etc.; lined with grass, rabbit fur, hair, feathers, etc.*
(*b*) *dry grasses and bents; lined with finer material and horsehair.*
(*c*) *moss, dry grass; lined with dead leaves (beech and oak).*
(*d*) *None. Small stones and rabbit droppings often present.* (6)

After a series of "Quickies" the score stood at 96 for the Under forties and 85 for the Over forties, and the meeting proceeded to the realm of nonsense in which, it must be admitted, the seniors and their supporters made considerable headway, the final score being Under forties 112; Over forties 110.

On the validity of *Pytilia melba damarensis* Neunzig, 1928

by P. A. Clancey

Received 29th April, 1961

Over thirty years ago the German systematist Rudolf Neunzig (1928) separated the Damaraland populations of the Melba Finch *Pytilia melba* (Linnaeus), 1758: China, *ex* Edwards, corrected to Angola by Zedlitz (1916), under the name *P. m. damarensis* Neunzig, 1928: Windhoek, characterized on the basis of paler general colouration and larger size. The *Type* is in the collection of the Zoological Museum, Berlin. *P. m. damarensis* has not been recognised by later workers (notably Sclater [1930]; Hoesch and Niethammer [1940]; and Clancey [1957]), but a re-appraisal of the question on the basis of a series 32 Damaraland specimens in the Durban Museum collection studied in conjunction with a series of twelve recently obtained examples of topotypical nominate *P. melba* from Angola (Durban Museum *ex* Chicago Natural History Museum, and on loan from the collection of the Instituto de Investigacao Cientifica de Angola, Luanda) suggests that there are valid grounds for considering *P. m. damarensis* as a recognisable race, with a range extending from southern and south-western Angola and South-West Africa, eastwards to the northern Cape Province, western Orange Free State, Transvaal and Southern Rhodesia.

Males of *P. m. damarensis* differ but slightly from those of *P. m. melba* in colour, averaging slightly darker golden olive over the mantle, but the difference is slight and not constant. However, they differ significantly in their larger overall proportions thus: wings of 22 ♂♂ of *P. m. damarensis* measuring 59–63 (61.2), 6 ♀♀ 58.5–61 (59.8), tails of ♂♂ 49–54 (51.0), ♀♀ 47.5–51 (49.1), as against wings of 56.5–58 (57.2) in 6 ♂♂ from the Luanda area of Angola, 4 ♀♀ 56–58.5 (57.2), tails of ♂♂ 43–47 (45.7), ♀♀ 44-47 (45.3) mm. In addition to being markedly larger, *P. m. damarensis* differs further in that the female has the head-top and nape slightly paler grey (Mouse Gray, *vide* Ridgway [1912] [pl. li], as against Deep Mouse Gray [same pl.] in *P. m. melba*), while the mantle colour is distinctly paler and duller, often exhibiting a strong admixture of grey (about Buffy Citrine [pl. xvi] as opposed to the deeper and unsullied Orange-Citrine [pl. iv] of the nominotypical race). Ventrally there is little in the nature of a salient difference between the females of the two taxa, although in series *P. m. melba* shows a good deal of olive wash over the sides of the breast and over the flanks, which feature is quite lacking in *P. m. damarensis*. It is interesting to note that in *P. m. melba* the sexes are exactly similar in size, whereas in *P. m. damarensis* the male is slightly larger than the female. These characters undoubtedly warrant the resuscitation of *P. m. damarensis* from synonymy.

I have not attempted to determine the range limits of *P. m. melba* with any degree of accuracy, but the race concerned is considered to range from Landana, the lower Congo, Stanley Pool and northern and central Angola, eastwards to the southern Congo (Katanga), Northern Rhodesia and western Nyasaland.

P. m. angolensis Reichenow, 1919: Angola, *Type* from Malanje (Prof. Dr. E. Stresemann, *in litt.*), appears to be a straight synonym of *P. m. melba*, the *Type* having a flattened wing-length of 58 mm. Two specimens from 15 km. W. of Yau? or Jau), Angola, collected by Gerd Heinrich in 1954 and now in the Durban Museum collection (*ex* Chicago Natural History Museum), are larger than those from the Luanda district of Angola (wing of ♂ 63.5, ♀ 60 mm.) and agree in their dimensions with *P. m. damarensis*, while the dorsal colouration of the female is also in conformity with this determination. With the finding of two geographical races of the Melba Finch within the political confines of Angola, it would seem desirable to further restrict the present type-locality of *P. m. melba* (''Angola''). *Fringilla Melba* Linnaeus, believed originally to come from China, was based on an Edwards reference (''Edw. *av.* 128, *t.* 128'', *vide* Linnaeus [1758]). Most of Angola was *terra incognita* and completely inaccessible at the time Edwards lived, although the coastal regions were comparatively well-known through the efforts of Portuguese explorers and navigators, and the Melba Finch was in all probability first made known to workers on the basis of captives sent back to Europe by early Portuguese colonists on board ships returning from the East. It seems that the type-locality should be in the coast region, and as this species occurs plentifully round Luanda, the capital and main seaport of the territory, I designate *Luanda, Angola*, as the restricted type-locality of *P. m. melba*.

In 1957 I reviewed the races of *P. melba* occurring within the South African sub-continent. In the light of the new findings this paper requires to be adjusted somewhat, mainly by the elimination of the nominotypical race from the South African list and its substitution by *P. m. damarensis* (as defined above). The small *P. m. grotei* Reichenow, 1919: Kionga, lower Rovuma R., southern Tanganyika Territory, in which the red on the throat of the male extends as a wash over the golden olive breast-band, and the female is darker than *P. m. melba*, particularly greener backed, comes within South African limits in the lower Zambesi R. valley, perhaps ranging as far south as Beira in the Portuguese East African littoral. *P. m. thamnophila* Clancey, 1957: Big Bend, Swaziland, has a more restricted range than formerly believed, being confined to Natal and Zululand, eastern Swaziland and the littoral of southern Portuguese East Africa (south of the Limpopo R.). In this race, the male has the red of the chin and throat peach-coloured, not scarlet, and the breast-band is dull green (about Olive Lake [pl. xvi]) not golden olive (Aniline Yellow [pl. iv]), while there are other minor differences (see original description). The female of *P. m. thamnophila* is still darker on the upper-parts than *P. m. grotei*, with which the former taxon agrees fairly well on size, though averaging larger. A series from the eastern Transvaal (Newington) is intermediate in colour between *P. m. thamnophila* and *P. m. damarensis*, but mensurally like the former. It may be that *P. m. thamnophila* and *P. m. grotei* are not in contact, being segregated from one another by intrusive populations of *P. m. damarensis*, thrusting eastwards with other xeric Kalahari elements from the dry interior through the ''Limpopo Gap'' almost to the Mozambique littoral, but much work still remains to be done on the distributions of the races of *P. melba* occurring within Portuguese East African limits.

Acknowledgements

For the loan of material I am grateful to Dr. A. A. da Rosa Pinto, Ornithologist on the Staff of the Instituto de Investigacao Cientifica de Angola, Luanda. To Herr H. E. Wolters, Bonn, I am indebted for the great trouble he has gone to in helping me with the literature, and to Prof. Dr. Erwin Stresemann, Berlin, I extend thanks for details of the *Type* of *P. m. angolensis*.

Literature cited:
Clancey, P. A. 1957. *Bull. Brit. Orn. Club*, vol. 77, 3, pp. 49–52.
Hoesch, W. and Niethammer, G. 1940. *Die Vogelwelt Deutsch-Südwestafrikas*, pp. 356–357.
Linnaeus, C. von. 1758. *Systema Naturae*, 10th edition, i, p. 180. Facsimile reprint. London.
Neunzig, R. 1928. *Zoologischer Anzeiger*, vol. lxxvii, pp. 9–10.
Ridgway, R. 1912. *Color Standards and Color Nomenclature*. Washington.
Sclater, W. L. 1930. *Systema Avium Aethiopicarum*, part ii, p. 787.
Zedlitz, O. von. 1916. *Journ. für Ornith.*, vol. lxiv p. 31.

On the geographical variation of the Yellow-throated Longclaw *Macronyx croceus* (Vieillot)

by P. A. Clancey

Received 29th April, 1961

Gyldenstolpe (1924) was the first worker to demonstrate the existence of geographical variation in the populations of the wide-ranging Yellow-throated Longclaw *Macronyx croceus* (Vieillot) of the savannas of Africa. Friedmann (1930), following on Gyldenstolpe's original observations, arranged the populations of *M. croceus* in two races: *M. c. croceus* (Vieillot), 1816: Senegal, and *M. c. vulturnus* Friedmann, 1930: coastal parts of Natal in the vicinity of Durban, the latter, introduced as a new race restricted to the extreme austral parts of the species' range, being separated from *M. c. croceus* solely on the basis of longer culmen length. While Friedmann's findings have been very largely followed by subsequent workers (see Roberts [1940], Vincent [1952], McLachlan and Liversidge [1957], *inter alia*), White (in Peters [1960]; 1961) has recently tried, without presenting nearly sufficient evidence, to convince other workers that the variation in this species is either seasonal or of such irregularity as to preclude its satisfactory nomenclatural recognition.

Some years ago, I showed (Clancey, 1952A) that the population of *M. croceus* occurring in north-eastern Zululand consisted of birds with rather shorter bills than in Natal topotypes of *M. c. vulturnus*, and in a fuller exposition (Clancey, 1952B) I arranged the populations of the South African sub-continent in two races (*M. c. vulturnus* and *M. c. croceus*), restricting the range of *M. c. vulturnus* to Pondoland, Natal and Zululand, the rest of the South African populations being referred to the nominotypical race. In a still later study (1958) I distinguished the populations of *M. croceus* of east-central and eastern Africa from both *M. c. vulturnus* and *M. c. croceus* on colour and mensural characters under the name *M. c. tertius* Clancey, 1958: Hartley, Matabeleland, Southern

Rhodesia. From *M. c. vulturnus*, *M. c. tertius* was separated on the basis of overall smaller proportions, rather greyer upper-parts, and clearer yellow medial ventral surface, and from *M. c. croceus* on the basis of greyer upper-parts, and the Lemon Chrome as against Light Cadmium (*vide* Ridgway [1912] pl. iv) of the breast and abdomen. In discussing the differences between *M. c. vulturnis* and *M. c. tertius*, I demonstrated that in a direct and critical comparison between series of skins of the two forms prepared by exactly similar techniques and by the same hands, there was a marked difference of between ½ and ¾ of an inch in length between the skins of the respective forms. This connoted a palpable size difference which could conceivably be treated statistically in the event of sufficient weights of newly shot *M. c. vulturnus* and *M. c. tertius* being made available in the future.

White (1961), in seeking to justify his earlier rejection of *M. c. vulturnus* (1960), has expressed the view that the geographical variation in this species is so complex and irregular that science is not served by the recognition of races (*cf.* Chapin [1953]). I do not believe that this species is abnormally or particularly locally variable, or that the recorded variation cannot be conveniently expressed by the recognition of subspecies. Moreover, White saw fit to discuss only about half of the characters utilized by me in my arrangement of the populations in to three forms—for instance he makes no reference to the fact that West African birds have duskier yellow under-parts than eastern or southern African ones, nor is any mention made of the differences in skin size advanced by me in the original description of *M. c. tertius* to enable one to distinguish this race from the adjacent *M. c. vulturnus*. That West African birds do in fact have dusky yellow under-parts was noticed years ago by the critical Zedlitz (see Gyldenstolpe [1924]). I submit that the inadequate evidence propounded by White does not amount to a fresh appraisal of the polytypic variation in *M. croceus*, warranting the synonymizing of *M. c. vulturnus* and *M. c. tertius* with *M. c. croceus*.

As in all pipits living the greater part of their lives in rank grass, the Yellow-throated Longclaw is subject to marked seasonal colour variation due mainly to abrasion, which appears to affect the plumage of the dorsal surface and the wings and tail more extensively than the underside. Therefore, in order to assess the geographical variation in the plumage colouration one is compelled to found decisions on material collected during the two or three months in the year in which the birds are in relatively fresh dress. It is an unfortunate fact that much of the material in the general run of museum collections is too worn and otherwise unsatisfactory to be of use in determining the existence and nature of the geographical as opposed to seasonal colour variation.

A critical study of that material in the Durban Museum collection which meets the above requirements shows that colour variation is not heterogeneous as suggested by White but is remarkably stable over vast areas. For instance, in the race *M. c. tertius* there is not the slightest palpable colour difference between birds from Sul do Save, southern Portuguese East Africa, Mashonaland, eastern Southern Rhodesia, southern Nyasaland and western Northern Rhodesia and those of coastal Kenya Colony. In further support of this finding, one need only look at the highly stable, though admittedly localized, *M. c. vulturnus*, in which there is little individual variation in series of skins in a precisely comparable condition.

In so far as size is concerned there is also marked constancy in the two races of which we have adequate and fully representative series (*M. c. vulturnus* and *M. c. tertius*). In *M. c. vulturnus* the flattened wings of adult males range from 100–105, tails 80–88 and culmens (from base) 21.5–24 mm. This race ranges from the littoral of southern Pondoland, eastern Cape Province, north-eastwards to northern Zululand and southern Swaziland, where it merges into *M. c. tertius*. This latter race is smaller in most dimensions than *M. c. vulturnus*, having a shorter bill and tail and in being greyer, less saturated brownish olivaceous, on the upper-parts in newly moulted dress—also clearer yellow below in adult males. The wings of adult ♂♂ *M. c. tertius* measure 96–100 (102), tails 74–80, culmens 20.5–21.5 (22.5) mm. The legs and feet are also smaller than in *M. c. vulturnus*. This size variation is quite clearly discernible in carefully prepared series without recourse to measuring, the skins of *M. c. tertius* being from ½–¾ of an inch shorter than those of *M. c. vulturnus* (see photograph). As already noted above, there is little or no variation of note within the taxon *M. c. tertius*, and the race is remarkably uniform, ranging from the northern limits of Zululand, northwards through Portuguese East Africa, eastern Southern Rhodesia, eastern Northern Rhodesia and Nyasaland to eastern Tanganyika Territory, coastal Kenya Colony and immediately adjacent south-western Somalia. It is interesting to note that van Someren (1932), working on a series of thirty-nine specimens, demonstrated what appears to be a marked size-difference between coastal Kenya Colony birds (*M. c. tertius*) and those of Uganda and the Kenya Highlands (*M. c. croceus*), giving the wings of examples of both sexes from the Kenya coast as 90–96, and of those from the elevated interior as 96–105 mm. The wings of ♂♂ ♀♀ of *M. c. tertius* in the Durban Museum, including a short series from Kilifi on the Kenya coast collected personally in April, 1958, measure 94–100 (102) (the wings of the Kilifi series measuring ♂♂ 100, 98, ♀♀ 94, 88 mm.) show that the race concerned is not separable from the nominotypical one on size.

Compared with *M. c. tertius*, freshly moulted examples of the nominate race are readily distinguishable on the basis of warmer and redder, less greyish, upper-parts. The brown fringes to the mantle feathers correspond closely to the Tawny-Olive of Ridgway (pl. xxix) as against Isabella Color (pl. xxx) in the eastern race. I did not allude to this distinction in my 1958 report, mainly owing to the fact that the majority of the West African skins then available to me had the upper-parts abraded. In addition to the dorsal character just enumerated, the two taxa are readily segregable on the grounds of a duller yellow abdominal surface in *M.c. croceus*, which has the yellow of the lower breast and abdomen more sullied or overlaid with buff or bronzy, thereby lacking the vibrancy and clarity of colouration present in *M. c. tertius* of the eastern tropics of Africa. As already noted above, while the dorsal differences are largely lost some two or three months after the completion of the moult, the variation in the tonality of the yellow of the medial ventral surface persists.

I have seen insufficient material from West Africa to permit of any generalisations in so far as *M. c. croceus* is concerned. Specimens from the highlands of Kenya Colony and the eastern Congo do not differ in colour from others from the Moyen Congo, the Gabon, the Cameroons and Nigeria, westwards to Ghana, Liberia and Sierra Leone, although within such populations there appears to be clinal size variation. Western Upper Guinea birds range appreciably smaller in size than those from the eastern sector of the race's range, most marked in the shorter tails (♂♂ from Ghana, Liberia and Sierra Leone having tails 68–77, ♀♀ 65–68 mm. (all specimens in variably worn dress, and tails in some instances particularly worn, but I do not concede that the demonstrable size difference is entirely due to wear, as the Upper Guinea birds are in addition physically very small (see photograph). The tails in 10 ♀♀ of *M. c. tertius* measure 74–78 mm. A single topotypical male of *M. c. croceus* from Mbidjem, near Thiès, Senegal, in the collection of the American Museum of Natural History, New York, is markedly larger than the more southern West African birds just discussed, having a wing of 105.5 and a tail of 82 mm. In these large dimensions it agrees with some of the eastern populations of the same subspecific entity.

With the limited material and data currently available to me I am unable to resolve the mensural variation in the taxon *M. c. croceus* at the present time, though the indications are that the populations of the humid forested regions of Upper Guinea are composed of smaller sized and more delicate birds than those inhabiting the savannas of the interior of West and north-central Africa. This was also noted many years ago by van Someren (1922). The range of *M. c. croceus* is from Senegal, Gambia, Sierra Leone and other West African territories, eastwards to the Cameroons, the Gabon, Moyen Congo, the lower Congo R., and northern Angola to the south-west of the Lower Guinea Forests, and north of the same forested region to the north-eastern and eastern Congo, Uganda, the southern Sudan, Abyssinia and the Kenya Colony highlands. *M. c. croceus* and *M. c. tertius* are largely separated from one another by extensive intrusive populations of the closely allied *Macronyx fülleborni fülleborni* Reichenow and *Macronyx fülleborni ascensi* Salvadori, converging only in the interior of Kenya Colony and immediately adjacent Tanganyika Territory.

The material now available in the collections of southern African museums supports the recognition in our formal subspecific arrangement of the populations of two reasonably well-marked races of the Yellow-throated Longclaw in eastern and south-eastern Africa (*M. c. vulturnus* and *M. c. tertius*) as distinct from *M. c. croceus* on both mensural and chromatic grounds. The latter, however, shows some marked, mainly size, variation within its component populations, which clearly warrants further study and analysis. In the light of these observations, I formally reject the findings of White, and resuscitate both *M. c. vulturnus* and *M. c. tertius* from the synonymy of *M. c. croceus*.

Acknowledgements

I am very grateful to both Dr. James P. Chapin, American Museum of Natural History, New York, and Mr. Melvin A. Traylor, Chicago Natural History Museum, Chicago, U.S.A., for their kindness in supplying information on West African examples of *M. croceus* held in the collections of these two institutions.

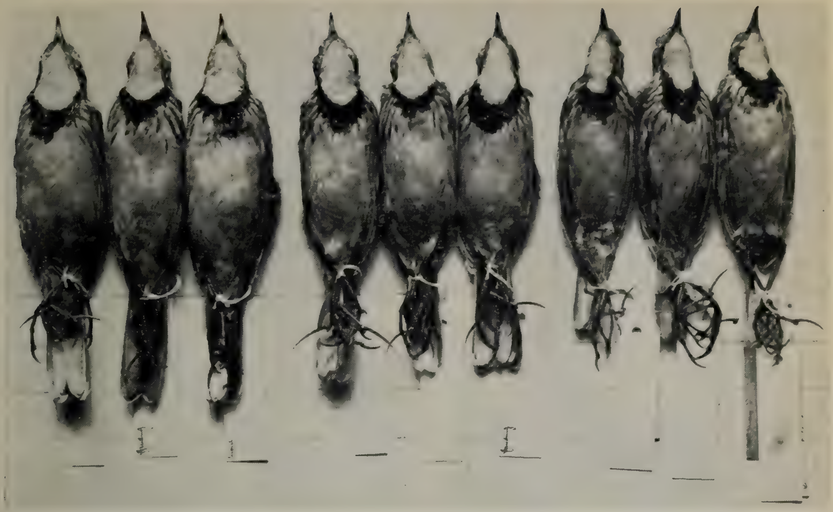


Photo: *Dennis Cleaver*

Macronyx croceus (Vieillot)

Photograph showing size variation in three races of the Yellow-throated Longclaw *Macronyx croceus*. The smaller overall size of the central group of three specimens (*M. c. tertius*) compared with skins of *M. c. vulturnus* (left group), and the much smaller physical proportions of the Upper Guinea populations of *M. c. croceus* (right group) (see discussion in the text) can be readily seen. The darker yellow abdominal surface in *M. c. croceus* when compared with *M. c. tertius* can also be discerned. Each horizontal division in the photograph represents one inch.

Literature Cited:

Chapin, James P. 1953. *Birds of the Belgian Congo*, part 3, p. 82.
Clancey, P. A. 1952A. *Annals of the Natal Museum*, vol. xii, 2, p. 263.
Clancey, P. A. 1952B *Journal of the Scientific Society of the University of Natal*, vol. viii, pp. 7–8.
Clancey, P. A. 1958. *Ostrich*, vol. xxix, 2, pp. 75–78.
Friedmann, H. 1930. *Occasional Papers of the Boston Society of Natural History*, vol. 5, pp. 263–266.
Gyldenstolpe, N. 1924. *Kungl. Svenska Vetenskapsakademiens Handlingar*, Tredje Serien, Band i, No. 3, pp. 81–82.
McLachlan, G. R. and Liversidge, R. 1957. *Roberts' Birds of South Africa*, p. 376.
Ridgway, R. 1912. *Color Standards and Color Nomenclature*. Washington.
Roberts, A. 1940. *Birds of South Africa*, p. 296.
van Someren, V. G. L. 1922. *Novitates Zoologicae*, vol. xxix, 1, p. 179.
van Someren, V. G. L. 1932. *Novitates Zoologicae*, vol. xxxvii, p. 336.
Vincent, J. 1952. *Check List of the Birds of South Africa*, p. 63.
White, C. M. N. 1960. in Peters *Check List of Birds of the World*, vol. ix, p. 143.
White, C. M. N. 1961. *Bulletin of the British Ornithologists Club*, vol. 81, 2, p. 34.

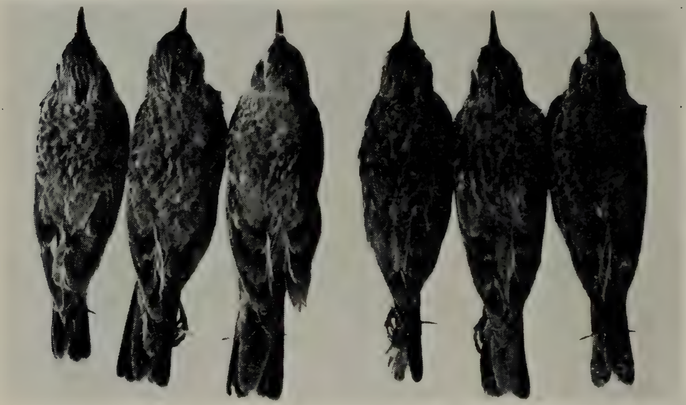
A revision of Balkan, Aegean and Anatolian Crested Larks

by George E. Watson

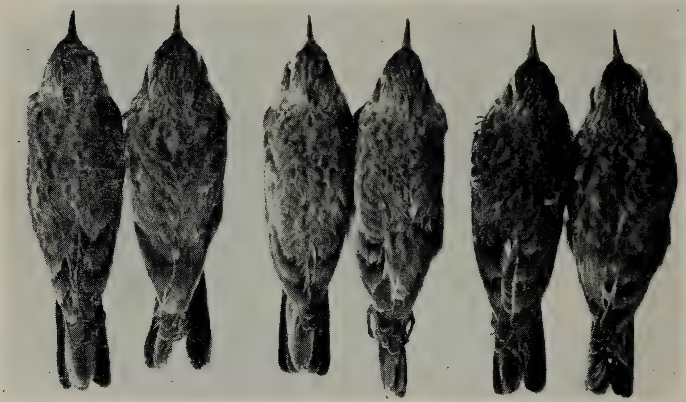
Received 15th April, 1961

Geographic variation in the Crested Lark, *Galerida cristata*, is obscured by a fair amount of correlation between the colour of the bird's dorsum and that of the substratum. This seems to be particularly true in areas of fairly constant year-round climatic conditions such as north Africa where the larks are especially sedentary. In Asia, the birds conform less to local soil colour, but still there is a high proportion of localised colour populations (Vaurie, 1951). Overall geographic and evolutionary trends are consequently subverted by local soil conditions which in turn may be due ultimately to local climate. Extreme splitting of such populations is invidious, but so is the lumping of morphologically similar but geographically widely separated convergent forms.

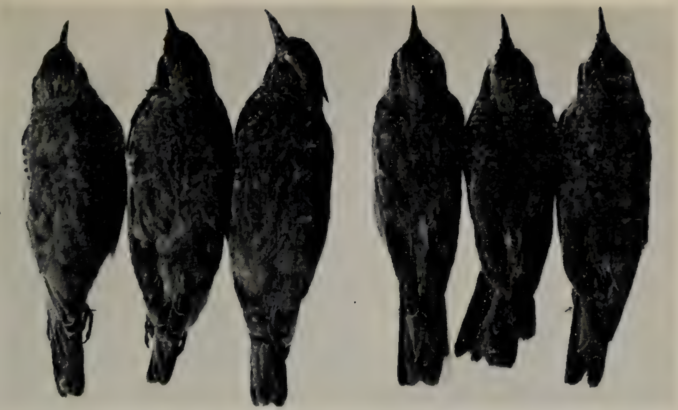
One hundred fifty-five Crested Larks were collected from Peninsular Greece, Macedonia, Thrace, the Aegean islands, and Turkey during two



On the left, three Crested Larks from Milos (December) compared with three specimens from Naxos (January).



On the left, two Crested Larks from Ankara (late February), compared with two (in centre) from Konya (early March) and two (right) from Mersin (early March).



On the left, three Crested Larks from Thrace (early March) compared with three specimens from Drama (January).

(Photographs by John Howard)

recent trips to the eastern Mediterranean for the Peabody Museum. Series of specimens were borrowed from the American Museum of Natural History for comparison. The author is grateful to Dr. Charles Vaurie for loan of specimens under his care. In an effort to clarify the taxonomic and evolutionary status of South Balkan, Aegean and Asia Minor birds, the following notes are presented based on this material.

The Crested Lark is one of the most common and characteristic birds of the lands surrounding the eastern Mediterranean. The species occurs in a great variety of habitats from sea level to at least 6000 feet, usually on fairly flat ground. Crested Lark populations may be found breeding wherever cover is sparse and the terrian is arid, in agriciultural and pasture land, steppe, Mediterranean phrygana with scattered small bushes, and semi-desert. In the spring, they feed over damp, almost inundated, fields, and in the late summer on barren and parched wastes. Only forests and the alpine zone lack breeding populations of this ubiquitous bird.

Crested Larks become extremely worn by the beginning of the breeding season in April and May so that it is desirable to have freshly moulted autumn specimens for comparison. It is also possible, however, that these may not be members of the local breeding population (Vaurie, 1951). Since there is but one moult per year from July through September, the only seasonal differences are due to wear. Seasonal wear abraids the pale edges of the feathers extremely quickly; even one month can bring about a pronounced change in the appearance of the dark centres of the dorsal feathers (Stresemann, 1920). In addition, the general colouration becomes more bleached and faded to sandy. Streaking on the breast tends to become spotting as individual feathers are reduced in length. Spring birds are on the average less heavy, and, of course, slightly shorter-winged. Females usually are less heavy and shorter-winged and billed than males from the same locality. The characters to be considered in geographic variation are colour of the upper and underparts, amount of dorsal spotting and breast streaking, overall size (wing length and weight), and shape of bill.

Greek mainland birds (specimens collected mainly from October to April) are greyish-brown above with light buff underparts. Birds from the west coast may be slightly darker with heavier spotting, but the birds of the whole peninsula are fairly uniform as a population and resemble closely specimens from Dalmatia. Three Dalmatian males, however, are remarkably short-winged. The same colouration is found in Macedonia and Thrace as far as the Evros River. Overall size varies individually as well as locally, with the largest birds found in north-central Macedonia. Bill size and shape are not constant nor do they seem to vary regularly.

One local population in Macedonia stands out from those nearby. Around Drama in northern Greece on dark reddish limestone soil, there occurs a very dark reddish-brown lark. Its underparts are buff and its breast streaking is strong. The upper tail coverts and two central rectrices are nearly uniform in colour whereas in almost all other populations of this region the feathers are dark-centred and pale-edged.

Continuing around the Aegean and along the Asia Minor coast, a series of 27 specimens collected between 3rd March and 24th April from Balikesir, south and east through Mersin, is fairly uniform in grey-brown colouration of the back, light buff underparts, amount of spotting on the breast and black centres to the dorsal feathers. Populations from different localities vary less than individuals within the populations. No break in the continuity of coastal Asia Minor populations is apparent and it is impossible to draw any line, especially one separating a brownish population of the Cilician coastal plain from a greyish one of the west coast. Size (wing length and weight) and bill length and shape are uniform in this series.

It is also difficult to separate this series on the basis of colour from six specimens from coastal Greek Thrace. In this latter series, however, the black spotting of the back is slightly more obscure and the bill tends to be stouter. Consequently, a fairly uniform series of grey-brown populations occurs along the whole of the south Balkan Peninsula and coastal Asia Minor fringing the Aegean.

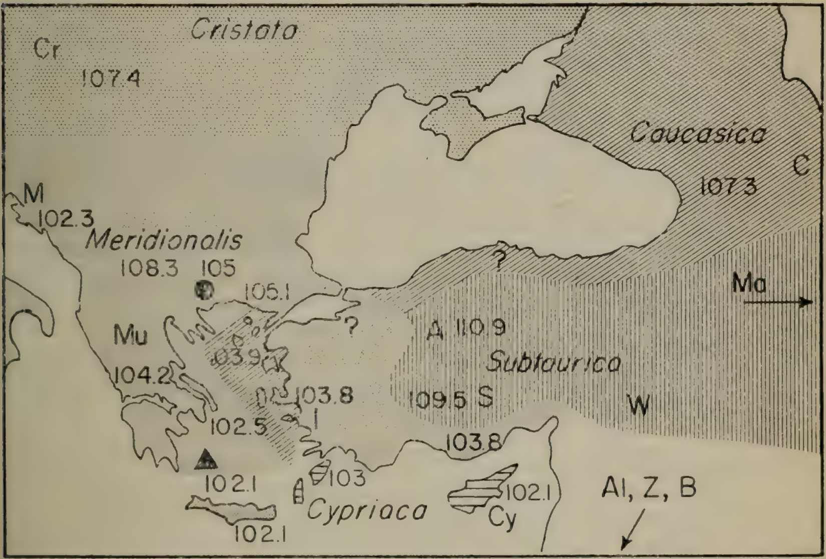
Inhabiting the central Asia Minor highland are pale sandy larks. Two population samples were collected for the present study. Three late February specimens from near Ankara are light brownish sandy above and buffy cream underneath. Further to the south, five early March specimens from near Konya and from the semi-desert sands near Karapinar are paler still, and tinged greyish rather than brown. There is even less back spotting than in the Ankara birds where it is relatively obscure. This is a good example of conformity to the even-grained texture of the sandy substratum of the desert (Niethammer, 1940). The underparts are very light, whitish-cream. All these central plateau specimens are long-winged and heavy, with attenuated bills.

Four early April specimens from the Elmali highland plain just west of Antalya are much paler than coastal birds and approach the Ankara specimens in colour, but in size and bill shape they are inseparable from coastal specimens and are probably an upland offshoot of the coastal stock.

Caucasian birds are much more brownish-grey and somewhat lighter than Asia Minor coastal birds. They are light buff underneath. The birds are somewhat shorter-winged than Asia Minor plateau birds, but larger than the other populations considered. The bill is moderately attenuate.

Specimens are lacking from north coastal and north western Turkey. Such material would be of great interest, since the following north eastern Aegean island populations differ markedly from nearby coastal birds.

Eight November specimens from Mytilene have the grey tones somewhat more emphasized than the browns and the underparts average a little creamier buff. The bill is stout in this population. Samian, Chiote, Limnian, and Samothracian populations probably belong with this grey group, but the specimens available were collected in late May and June and are very worn. The bills, however, are more attenuated. They are most similar to Caucasian birds on the basis of colour.



Map 1. Eastern Mediterranean showing the ranges of the subspecies recognized, ? designates areas from which no specimens have apparently been collected; type localities of named populations mentioned in text are designated by the same letters as in Table 2; locations of two "soil races" (● Drama and ▲ Milos); and the mean wing length of males in millimeters.

A paler grey form occurs on Rhodes (April) and Karpathos (April) which differs sharply from the nearby brownish populations of the Asia Minor coast. The underparts are very pale. noticeably less buff than in Caucasian birds. The bill is moderately stocky.

Fresh specimens from Cyprus are likewise pale and greyish; the bill is attenuate. These two populations are quite short-winged, like the other southern Aegean populations and quite unlike the longer-winger and darker grey Caucasian stock.

The Cretan population, which has often been lumped with the Cypriote and Rhodian populations, does not fit at all into the same colour group. Cretan birds (October, December and May) are sandy grey-brown, paler and less grey than Cypriote and paler and more sandy than Greek mainland or Asia Minor birds. The bill is attenuate.

North Cycladian birds are variable, some brownish, some greyish, even from the same island. Although it is difficult to characterize them on the relatively unworn material available (Andros, Naxos, Delos, Ios), they appear to be browner than the Mytilenian birds and in fact are similar to the coastal mainland birds. Specimens from Syros and Paros are too worn to be of much use, although they appear constantly brownish. The bills vary from moderately stout to stout. Specimens from Kythera are similar in colour but have more attenuated bills.

On Milos in the south Cyclades, there occurs a remarkably light-coloured population. The upperparts are pale grey sandy, with the spots on the dorsum large and conspicuous. The underparts are creamy white so that the bird in December appears much paler than any other island population including those of Rhodes and Karpathos. Since Milos is an island of volcanic origin and has very pale, almost white soils, finding such a pale form of lark on the island is not surprising. In fact, the dorsal colouration is fully as light as that in the population from near Konya in central Asia Minor where the substratum is also extremely pale. In the latter population, however, the black dorsal spotting is not pronounced and the bird consequently appears overall lighter. The Milos birds are further separable in being smaller and having a stout rather than attenuated bill.

These characters are summarized in table 1 and map 1. The map reveals the north-south clinal nature of variation in male wing length over most of the area and the abrupt colour and size discontinuity on the Asia Minor plateau.

Past taxonomic treatments of these populations of Crested Larks have not agreed on either the nomenclature or appearance of the birds. The results of the recent major revisions are summarized in table 2. There is general agreement that in Asia Minor, birds of the central plateau are lighter and larger than those of the coast. The status of the northern plateau birds, however, is uncertain and only one author recognizes even a poorly differentiated population. Two forms have been recognized as occurring on the coast, a browner one to the south extending on into the mountains of Palestine, and a grey one on the west which has been assumed to be continuous along the north coast into the Caucasus. This separation, initiated by Bird (1937) and endorsed by Meinertzhagen (1951), has been followed by all recent revisers except White (1939) and von Jordans and Steinbacher (1948). Insufficient material has restricted valid judgements on the status of Greek birds, and some authors lump all European Crested Larks into the nominate form. Island populations, when considered, have been combined with either the Asia Minor and Caucasian populations or with the Cypriote.

Most of these practices have resulted not only in a welter of names, including some forms with type localities well outside the area under consideration, but have obscured the possible evolutionary history and relationships of these populations.

Because of the extreme individual variation even within some restricted populations, any taxonomic separations have to be made on the basis of populations and not individuals. Correspondence between the dorsal colouration of the bird and the colour of the local soil results in the situation that almost every population is different from some nearby populations, but through convergence or parallelism may approach in one or more characters remote populations inhabiting areas with similar edaphic conditions. Trying to work out a useful and meaningful taxonomy for such a series of populations in which general trends are locally obscured is nearly impossible and it would be reprehensible to name additional "soil" races, at least on the mainland.

Considering south east Europe, Asia Minor, and the adjacent areas however, we can generally note the following major morphological characteristics over broad geographic areas: dark greyish-brown birds inhabit south east Europe; a much greyer form occurs in the Caucasus; a light brownish-grey form occurs on some south Aegean Islands and Cyprus; and a series of large, long-billed, pale populations extends from east central Asia into Anatolia.

Locally, colour may be abruptly different from the general trend, such as in the pale population on the island of Milos or in the dark reddish-brown Drama population. But nothing is gained by putting an existing pale tag such as *brachyura* or *subtaurica* on the Milian form (size too small anyway) or *cinnamonica* (a reddish form from Palestine) on the Macedonian birds just because that is what they most closely resemble in a museum drawer. Describing such localized races does not solve the basic problem of their evolutionary origin. For a discussion of a similar situation of locally evolved adaptive populations of American Pocket Gophers (Geomyidae), see Davis (1939). His solution to the problem is evolutionary and essentially the same as that presented in this paper.

Each of these colour forms has probably developed quite recently *in situ* and might conceivably change rapidly in response to an alteration in soil colour brought about by climatic change or deforestation. Moreau (1930) showed that strikingly aberrant Crested Lark populations took between 5,000 and 10,000 years to evolve in Egypt.

The following taxonomic suggestions are made on the basis of the characters of the various populations. Four groups of populations may be recognized as subspecies in this array. Local geographic variations ("populations," *sensu* Vaurie, 1958) may be grouped in these subspecies. The following subspecies result: a brownish form *G. c. meridionalis*, a greyish form with buff underparts; *G. c. caucasica*, a light greyish form with pale underparts; *G. c. cypriaca*, and a long-winged pale form *G. c. subtaurica*.

The following are their ranges and included populations:

Galerida cristata meridionalis Brehm, 1841, Dalmatia.
G. c. muehlei Stresemann, 1920, Greece.
G. c. ioniae Kollibay, 1912, Priene on Meander River near Izmir, Turkey.

Dalmatia, Macedonia, to southern Greece including the Peloponnesus, Cyclades Islands (where some populations show intergradation with the following subspecies), and Crete; Thrace and along western and southern coastal Asia Minor at least to Mersin, Tarsus, and probably to coastal

Hatay province, where Kizil Dag (Mount Amanus) forms an effective barrier, to its meeting the Syrian populations.

Galerida cristata caucasica Taczanowski, 1887, Lagodekhi in Caucasus.

Caucasus, Transcaucasia, and possibly along the north Asia Minor coast; islands off Asia Minor in the north Aegean Sea (Samothrace,

	Color upper-parts	Back spots	Color under-parts	Breast spots	♂♂	Wing length mm.	Weight gr.	Bill length mm.	Bill shape
Dalmatia	greyish brown	3–4	light buff	3–4	3	101–104 (102.3)	—	19–19.5 (19.3)	mod.atten.
North Macedonia	—	—	—	—	3	*105–114.5 (108.3)	—	—	—
South Macedonia and Thrace	greyish brown	3–4	light buff	3–5	7	103–107 (105.1)	45–53 (47.3)	19–20.5 (20.1)	mod.stout-mod.atten.
Drama	reddish brown		buff	4–5	6	103–107 (105)	45–50.5 (48.8)	19.5–20.5 (20)	mod.atten.
Mainland Greece	greyish brown	3–4	light buff	3–5	4	99–109 (104.2)	41.48.5 (45.2)	20–21 (20.4)	stout-mod.stout
Cyclades	light grey brown	3–4	creamy buff	3–4	17	101–105 (102.5)	36–45 (40.5)	18.5–21.5 (19.9)	atten.-stout
Milos	pale grey sandy	3	creamy white	3–4	9	97–106 (102.1)	36–45 (39.7)	19–20.3 (19.8)	stout.
Crete	sandy grey brown	3–4	creamy buff	2–4	8	99–105 (102.1)	37–44 (40.6)	19.7–21 (20.3)	atten.
Rhodes and Karpathos	pale sandy grey	4–5	buffy cream	3	5	99–105 (103)	36–42 (38.9)	20–21 (20.5)	mod.stout.
Cyprus	pale sandy grey	3	creamy buff		7	99.5–104 102.1	—	18.5–20.7 (19.3)	atten.
North Aegean Islands	brownish grey	4	creamy buff	4–5	14	101–106.5 (103.9)	39–45.5 (41.4)	19–21 (20.2)	stout-atten.
Western Asia Minor	greyish brown	3–5	light buff	3–4	21	99–109 (103.8)	36–46.5 (41)	18.5–20.5 (19.8)	mod.atten.
Southern Asia Minor	greyish brown	3–5	light buff	4–5					mod.atten.
Ankara	light brownish sandy	2	buffy cream	2–3	9	*109–113 (110.9)	43–52 (47.7)	20–21 (20.7)	atten.
Konya	pale grey sandy	1–2	creamy white	2–3	5	107–111.5 (109.5)	40–48 (44)	18.5–22 (20.5)	atten.
Caucasus	brownish grey	4	light buff	3–4	9	*101–114 (107.3)	—	19–21 (20)	mod.atten.

TABLE 1. Characters of various populations of Crested Larks used in this study; back and breast spot definition ratings based on scale of 1–5; number of ♂♂'s refers to specimens measured, females were only used in assessment of colour and bill characters; wing measurements marked with an asterisk are taken from Stresemann (1920), von Jordans and Steinbacher (1948), and Vaurie (1951).

	Macedonia and Thrace	Mainland Greece	Cyclades	Crete and Rhodes	Cyprus	West Coastal AsiaMinor	South Coastal Asia Minor	Caucasus	Central Anatalian Plateau	Eastern Anatolian Plateau
Hartert and Steinbacher (1903–1933)	M	M=Mu	Cy	M,Cy	Cy	Cy=I	Omits	C	S	Ma=W
Stresemann (1920)	M	Mu								
Bird (1935, 1936)			Cy			C=I	Z	C	C=A, B=S	B=W
Sassi (1937)			M	C	C=Cy	C=I		C	C=A=S	
White (1939)	Cr=M		Cy	Cy	Cy	Cy=I	?	C	B=S	B=W
von Jordans and Steinbacher (1948)					Cy	C=I	C	C	C=A, S	
Meinertzhagen (1951)	Cr=M	Cr=Mu	Omits	Cr C (some Crete)	C=Cy	C=I	Z	C	C=A=S	Al=W
Vaurie (1958)	M	M or Omits	Omits	C	C=Cy	C=I	Z	C	S=A	S=W
Peters (1960)	M	M=Mu	Omits	C	C=Cy	C=I	Z	C	S=A	S=W
Watson (1961)	M	M=Mu	M	M,Cy	Cy	M=I	M	C	S=A	S=W

TABLE 2. Results of recent taxonomic treatments of eastern Mediterranean Crested Larks. Blank indicates author did not consider area in discussion; "omit" indicates author fails to treat the birds of the area. M= *G. c. meridionalis*, Mu = *muehli*, C = *caucasica*, Cy = *cypriaca*, Z = *zion*, S = *subtaurica*, A = *ankarae*, W = *weigoldi*, *Cr* = *cristata*, Al = *altirostris*, B = *brachyura*, Ma = *magna*.

Limnos, Mytilene Chios and Samos). Intergrades with *G. c. meridionalis* in some of the eastern Cyclades.

Galerida cristata cypriaca Bianchi, 1907, Cyprus.
Cyprus, Rhodes, Karpathos.

Galerida cristata subtaurica Kollibay, 1912, Eregli, north of Taurus Mountains.
G. c. ankarae Kummerlöwe and Niethammer, 1934, Ankara, Turkey.
G. c. weigoldi Kollibay, 1912, Urfa, Turkey.
Central Asia Minor plateau north of Taurus mountains. Steppe populations which are darker than southern desert forms, extend north at least to Bolu and Kastamonu.

These subspecific differences are of fairly recent origin, probably due to isolation during the late Würm glaciation. Their present distribution may be explained in terms of their post-glacial spread from ice-free refugia. *G. c. meridionalis* may be the population of the Mediterranean ''pluvial'' refuge; *G. c.* caucasica, the result of glacial isolation on the Ukrainian or Volga steppes; *S. c. subtaurica* derived from a post-glacial invasion by an eastern desert form elsewhere represented by *G. c. magna*; and *G. c. cypriaca*, a relatively recent locally differentiated offshoot of the *caucasica* group. The named populations included under these subspecies and any other local population differences were developed much more recently, and are associated with local edaphic or climatic conditions rather than reflecting distributional history.

SUMMARY

The recognition of numerous subspecies of Crested Lark based on local conformity to the colour of the substratum obscures the evolutionary relationships within this species. Populations from the eastern Mediterranean are discussed on the basis of 155 recently collected specimens. A revised classification is presented recognizing past evolution in isolation and minimizing recent and local adaptive ''soil'' populations.

References:

Bird, C. G. 1935. A visit to the Cyclades, Ibis 77: 236–355. 1936. Crested larks from the Near East. *Bull. Brit. Orn. Club.* 56: 55–58.
Davis, W. B. 1939. The recent mammals of Idaho: 234–260.
Hartert, E. 1903–1933. Die Vögel der paläarktischen Fauna: 226–236, 2085–2089; Ergänzungsband (with F. Steinbacher): 113–120.
von Jordans, A. and J. Steinbacher 1948. Zur Avifauna Kleinasiens. Senckenbergiana 28: 159–186.
Meinertzhagen, R. 1951. Review of the Alaudidae. Proc. Zool. Soc. London 121: 81–132.
Moreau, R. E. 1930. On the age of some races of birds. Ibis: 72: 229–239.
Niethammer, G. 1940. Die Schutzanpassung der Lerchen. Journ. f. Orn. 88 (Sonderh.): 75 - 83.
Peters, J. L. 1960. Check-list of birds of the world (ed. by E. Mayr and J. C. Greenway, Jr.): 55–61.
Sassi, M. 1937. Zoologische Ergebnisse einer Dodekanes—Reise von O. Wettstein 1935. Vogel von Rodi und von einigen aigaische Inseln. Verh. Orn. Ges. Bayern. 21: 91–122.
Stresemann, E. 1920. Avifauna Macedonica: 59–62.
Vaurie, C. 1951. A study of Asiatic Larks. Bull. Amer. Mus. Nat. Hist. 97: 431–526. 1958. The Birds of the Palearctic Fauna: 43–49.
White, C. M. N. 1939. A contribution to the ornithology of Crete. Ibis 81: 106–136.

An additional race of *Buphagus erythrorhynchus* (Stanley) from the Somali Arid District

by P. A. Clancey

Received 27th May, 1961

In a recent review of the geographical variation exhibited by the various populations of the Red-billed Oxpecker *Buphagus erythrorhynchus* (Stanley), it was shown that the northern populations could be grouped into two subspecies on the basis of colour and size differences, one of which would require to be given a name (*vide* Clancey and Lawson, *Antea*, pp. 128–131). Study of further material collected at Garissa, on the Tana River, and at Kachileba, Suam River, north-east of Mt. Elgon, Kenya Colony, in January–February, 1961, by Mr. M. O. E. Baddeley, taxidermist of the Durban Museum, and material from Abyssinia and Eritrea (topotypical of *B. e. erythrorhynchus*) loaned from the American Museum of Natural History, New York, through the kindness of Dr. James P. Chapin, shows that *B. e. erythrorhynchus* is a name applicable to the large-sized highland birds (wings in adults of 115–125.5 mm.), and that the markedly smaller and rather paler form of the Somali Arid District of north-eastern Africa will require to be given a name.

Buphagus erythrorhynchus invictus, subsp. nov.

Description: Compared with recently obtained *B. e. erythrorhynchus* (Stanley), 1814: northern Abyssinia, slightly paler on the upper-parts, particularly over the head. Ventrally rather paler over the throat, breast less washed with olivaceous, and with the lower breast, flanks and abdomen whiter (about Cartridge Buff [pl. xxx], as against Cream-Buff [same pl.] [*vide* Ridgway, *Colour Standards and Colour Nomenclature*, 1912]). Markedly smaller in size, thus: wings (flattened) of 11 adult ♂♂ ♀♀ 108–113 (110.2), as against 115–121.5 (118.1) in 12 ♂♂ ♀♀ of *B. e. erythrorhynchus* (Clancey and Lawson, *loc. cit.*, give wings of eleven other specimens of this latter race as 115–125.5 [118.4] mm.).

Material examined: B. e. erythrorhynchus, 23; *B. e. invictus*, 11; *B. e. scotinus* Clancey and Lawson, 16; *B. e. caffer* Grote, 20.

Distribution: Somalia and adjacent south-eastern Abyssinia (Ogaden) and eastern Kenya Colony (west to about 39° E. long.). In the East African littoral south to about the mouth of the Tana R., south of which it intergrades with *B. e. scotinus.*

Type: ♂, adult. Garissa, Tana River, eastern Kenya Colony. 20th January, 1961. Collected by M. O. E. Baddeley. In the collection of the Durban Museum.

Measurements of the Type: Wing 110, culmen (exposed) 14.5, tarsus 20.5, tail 82 mm.

Remarks: The name chosen for the new race is from the Latin *invictus*, unconquered, and figuratively meaning irrefutable.

Study of the geographical variation of *B. erythrorhynchus* requires to be undertaken almost entirely on the basis of recently obtained material, as the species is prone to fairly rapid foxing. Skins only a few years old become quite buffy over the head, probably as a result of carotenoid staining from the red bill. As the Durban Museum collection contains very fresh material of the four races of the Red-billed Oxpecker, I propose to list and treat succinctly hereunder the characters and ranges of the forms for the benefit of other workers not so advantageously equipped.

(a) *Buphagus erythrorhynchus invictus* Clancey, 1961: Garissa, Tana R., eastern Kenya Colony.

Palest and smallest race. Upper-parts dark greyish olive with buffy overlay; throat and breast light grayish olive, the latter with slight olivaceous suffusion; lower breast, flanks and abdomen cartridge buff. Wings of ♂♂ ♀♀ 108–113 mm.

Range: A xeric race confined to Chapin's Somali Arid District (*vide* Chapin, *Birds of the Belgian Congo*, part i, 1932, p. 90), ranging from Somalia to adjacent Abyssinia (Ogaden) and eastern Kenya Colony.

(b) *Buphagus erythrorhynchus erythrorhynchus* (Stanley), 1814: northern Abyssinia.

Slightly darker above and palpably more richly coloured below than the last race. Markedly larger in size. Wings of ♂♂ ♀♀ 115–125.5 mm.

Range: Eritrea and northern Abyssinia, southwards to the southern Sudan, Uganda and the highlands of Kenya Colony. Also reaching into the north-eastern Congo. A mesic race.

(c) *Buphagus erythrorhynchus caffer* Grote, 1927: Palala R., Zoutpansberg, Transvaal.

Only moderately well differentiated from *B. e. erythrorhynchus*. Slightly darker over the throat and breast, and paler and less buffy over the lower breast, flanks and abdomen. Ventral surface of tail without any trace of the cinnamon suffusion present in both *B. e. erythrorhynchus* and *B. e. invictus*. Wings of ♂♂ ♀♀ 119–124 mm.

Range: Like the nominotypical subspecies, a mesic form ranging from about the southern aspects of the Kenya Colony highlands, southwards through western and central Tanganyjika Territory to Northern Rhodesia, Nyasaland, Bechuanaland Protectorate, Southern Rhodesia, the Transvaal, Orange Free State, and Natal and Zululand (*Note:* No recent Natal and Zululand specimens are currently available, owing to the widespread extirpation of the species through cattle dipping and game elimination, and the population of the territory concerned is only tentatively assigned to *B. e. caffer*).

(d) *Buphagus erythrorhynchus scotinus* Clancey and Lawson, 1961: Panda, Inhambane, Mozambique.

Darkest race. Darker and blacker on the upper-parts than *B. e. caffer* (about fuscous), and darker over the sides of the head and neck. On under-parts darker over the throat and breast, and more richly coloured over the lower breast, flanks and abdomen (about chamois). Wings of ♂♂ ♀♀ 115–125 mm.

Range: A hygric race of the eastern tropical littoral of Africa, extending from coastal Kenya Colony (population similar mensurally to *B. e. invictus*) and eastern Tanganyika Territory to northern and southern Portuguese East Africa. The population of Zululand may be referable to the present race and not *B. e. caffer*.

8 JAN 1962

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 4*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 4*s*., payable to the Hon. Treasurer, C. N. Walter, Finsbury Pavement House, 120 Moorgate, London, E.C.2.

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Miss E. Forster, The Double House, Wiveton, Holt, Norfolk.

DINNERS AND MEETINGS FOR 1962

16th January, 20th February, 20th March, 17th April, 15th May, 18th September, 16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

-5 FEB 1962
PURCHASED

BRITISH MUSEUM (NATURAL HISTORY)

Volume 82
No. 2

February
1962

- 5 FEB 1962
PURCHASED

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 82

Number 2

Published: 1st February, 1962

The five hundred and ninety-fifth meeting of the Club was held at the Rembrandt Hotel, London, on 16th January, 1962.

Chairman: CAPTAIN C. R. S. PITMAN

Members present, 19; Associate Members (Overseas), 2; Guests 7; Total 28.

Some recordings of bird voice

Mr. Jeffery Boswall, Producer, of the B.B.C. Natural History Unit, played and commented upon some fifty recordings of sounds, nearly all vocal and some mechanical, made by birds from different zoogeographical regions, the recordings having been made by twenty-five recordists.

The reproductions played during the first part of the programme served to explain the various functions of the sounds made by birds—the territorial and mate-attracting value of "song"; the sub-song, alarm calls, injury cries, contact notes, "conversation" between adult and young, the echo-location "clicks" of Low's Swiftlet (*Collocalia lowi*) recorded in the caves of Sarawak and the call of the Honey-guide, *Indicator indicator*.

In the second part the learning abilities of birds were well demonstrated by examples of vocal mimicry among wild birds and some showing the accurate reproduction of sounds achieved by certain captive "talking" birds such as the parrots (including the Budgerigar) and the mynah *Gracula religiosa*.

Lastly Mr. Boswall dealt with the possibility that birds may sing not only because it is biologically advantageous to do so, but also as a genuine, if limited, sense of musical expression. Reproductions of unison song, duetting and a variety of other types of expression were played.

Some discussion followed upon the programme and brought to an end a very interesting and enjoyable evening.

Jacanas and other birds perching on Hippo

by C. W. BENSON

Received 23rd June, 1961

With reference to the notes in *Bull. Brit. Orn. Cl.*, 81, 1961 : 85–86, I regret that attention was not drawn to Verheyen's "Monographie Ethologique de l'Hippopotame" (*Inst. Parcs. Nat. Congo Belge*, 1954), based on work in the Albert National Park. On pages 53–54 Verheyen records no fewer than fourteen species perching on hippo, the Hammerkop (*Scopus umbretta*) and Pied Kingfisher (*Ceryle rudis*) apparently both doing so while fishing.

Footnote:— R. Meinertzhagen in *The Birds of Arabia* (1954), p. 471 writes under Crab Plovers: "On Mafia Island I have seen them perched on the backs of basking hippopotami who were themselves asleep in seawater on a coral reef."

A new name for *Estrilda astrild angolensis* Reichenow

by MELVIN A. TRAYLOR

Received 26th June, 1961

In his revision of the Estrildinae, Delacour (1943, Zoologica, 28: 69–86) failed to note that *Estrilda astrild angolensis* Reichenow (1902, Orn. Monatsb., 10: 173) is preoccupied by *Estrilda a. angolensis* (*Fringilla angolensis* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 182) when *Uraeginthus* is united with *Estrilda*. For those who follow Delacour's generic revision, a new name is necessary for *E. a. angolensis* Reichenow, and I propose:

Estrilda astrild malanje nom. nov.

for *Estrilda astrild angolensis* Reichenow, 1902, preoccupied by *Estrilda angolensis angolensis* (*Fringilla angolensis* Linnaeus, 1758).

Notes on the taxonomy of the Indigo Birds

by C. M. N. WHITE

Received 3rd May, 1961

The Indigo Birds are parasitic weavers, sometimes placed in the genus *Hypochera*, but better included in the genus *Vidua* since their female and non breeding male plumages are very similar to those of other species of *Vidua*. The breeding males are of uniform dark colour varying from matt blackish purple to glossy purple, blue or green with a metallic lustre. The taxonomy of the Indigo Birds and the number of species has always been the subject of much doubt. Sclater (1930) arranged them in five species; Grant and Praed (1949) recognised eight species; Chapin (1954) lists five as occurring or likely to occur in the Congo but adds that there may only be three; Wolters (1960) discusses the possibility of only two species. Whatever the number of species, the uncertainty of how to distinguish females and non breeding males is even greater than the separation of males. Only Grant and Praed (1955) claim that their males are associated with distinguishable females. Characters used to distinguish breeding males are the colour and degree of the metallic gloss, colour of flight feathers, and colour of bill and feet. These characters have been used either separately or in various combinations. The present note arises primarily from an investigation of the position in Central Africa but considers data from other parts of Africa. About 170 breeding males and 40 females from South and Central Africa and Tanganyika were available through the kindness of the Transvaal Museum and the National Museum, Bulawayo to whom I am greatly indebted for the loan of material. The date is analysed firstly by geographical areas.

1. *South Africa* (*south of the Limpopo*)

Roberts recognised three species in this area, but McLachlan and Liversidge consider that there are only two. Seventeen males examined consist of seven dull purplish birds and ten bluish green birds. The former have whitish bills and correspond to *V. funerea;* the latter have red bills and correspond to *V. amauropteryx*. Data on the colour of the feet is inadequately recorded on the labels but all birds from this area are believed to have reddish feet. The seven females available from south of the Limpopo appear to be indistinguishable although some are labelled as *funerea* and others as *amauropteryx*. Neither Roberts nor McLachlan and Liversidge suggest any means by which females can be separated apart from the assumption that female *amauropteryx* have red bills. The red bill of male *amauropteryx* is very persistent in skins many years old, but there is no sign that this is true of females.

2. *Southern Rhodesia north to the Zambezi Valley from the Caprivi Strip to about Tete*

Thirteen breeding males correspond to *funerea*, all from Southern Rhodesia; 25 from Southern Rhodesia and 18 from the Zambezi Valley correspond to *amauropteryx;* one from Southern Rhodesia, one from the Zambezi Valley and one from Nata, Bechuanaland correspond to *amauropteryx* but have whitish bills as in *funerea*. In this area *amauropteryx* type males have red feet as in South Africa, but *funerea* males usually have brown or pinkish or whitish feet. Eleven females were available from this area. One from Melsetter agrees with South African females, the remainder are more tawny above with much better defined black streaking compared with the browner backed and more obscurely streaked South African females. Thus from South Africa to the Zambezi there is evidence of geographical variation in females but no evidence that two apparent species of males are associated with distinguishable females.

3. *Northern Rhodesia and south Nyasaland*

Males of the *funerea* type occur throughout (Northern Rhodesia 25, S. Nyasaland 11). Males of the *amauropteryx* type occur in the Southern, Central and Eastern provinces of Northern Rhodesia and in S. Nyasaland (Northern Rhodesia 18, S. Nyasaland 7). In addition males resembling *amauropteryx* in colour but with whitish bills occur—six from Northern Rhodesia and 13 from S. Nyasaland as well as seven from Rukwa in S. W. Tanganyika. These white billed *amauropteryx* include a few unusually glossy green individuals, others are like the *amauropteryx* aggregate. Females from the south and centre of Northern Rhodesia and from S. Nyasaland agree with those of Southern Rhodesia except for one dark bird from S. Nyasaland which is like South African females. Females from the north of Northern Rhodesia are however dark and appear indistinguishable from South African females.

4. *Katanga and Kasai*

No red billed and red footed *amauropteryx* are known to me from this area but in the Kasai birds of similar colour, often rather more lustrous than many *amauropteryx* and with brownish feet and white bill, occur.

Chapin treated these as a form of *amauropteryx* under the trinomial *camerunensis*. It is however doubtful if they can be separated from the white billed *amauropteryx* of N. E. Northern Rhodesia or Rukwa which often have pinkish or whitish brown instead of red feet.

The pattern of variation in Southern and Central Africa

We have now seen that two types of male breeding plumage occur throughout this area if a distinction is based on colour of the body plumage. One varies from dull matt purplish black to more glossy purple. Grant and Praed with 16 of the more glossy purple males and four of the matt males suggest that these comprise two species, *funerea* and *nigerrima* respectively. With 60 such males before me it appears that no such distinction can be made since there is complete intergradation from matt to glossy purple. A few males are exceptionally rich lustrous purple and might on such criteria qualify as yet another species. I conclude that *nigerrima* must fall away as a species. All these birds may therefore be called *funerea;* the only geographical variation is that the feet are redder south of the Limpopo, pinker, whiter or browner further north. The second type of male is glossy blue green or green. Its flight feathers are often, especially in more northern birds, blacker than those of *funerea*, but some individuals differ very little in this respect. A cline of decreasing red in the colour of bill and feet runs from south to north since about as far as the Zambezi valley both bill and feet are normally red, in south Nyasaland and in Northern Rhodesia the bill is often white and the feet sometimes pinkish or brownish whilst in the Kasai no red bills or feet are found. The species known as *codringtoni*, described from Petauke in the Eastern Province of Northern Rhodesia is such an intermediate bird, having whitish bill, pink feet and rather blackish primaries and a strong green body gloss. Its supposed larger size is not a fact since its dimensions agree with other red billed and white billed *amauropteryx*. In my view therefore *amauropteryx* can be used for convenience for all these green birds irrespective of the colour of bills and feet which has clearly no specific significance. Accordingly I consider that *codringtoni* falls away as a species; for the same reason there is no reason to regard *camerunensis* as a species.

The number of species in Southern and Central Africa

On the evidence thus far presented, breeding males in these areas may be thought to comprise two species, *funerea* and *amauropteryx*. There is little evidence that these two very similar species have any peculiarities which keep them apart in life. At Chilanga near Lusaka C. W. Benson has found both occurring in the same area without any distinction in habitat, behaviour, voice or other observable features. In Southern Rhodesia M. P. Stuart Irwin informs me that whilst he thought that the scatter pattern of singing males suggested two species, he feels that further observation is needed to confirm this. The statement in the Southern Rhodesia Check List that *amauropteryx* is found about townships must therefore be regarded as requiring further study. No such peculiarity has been noted in Northern Rhodesia. Both "species" where they occur in South and Central Africa are alike in size, have no field characters to distinguish them, and have apparently identical females in any given locality. Such variation as is found in females is geographical and in view of its pattern of distribution rather difficult to interpret. Statements in the literature which claim differences between females of supposedly different species are highly unsatisfactory. In the first place there is no indication as to how females have been assigned to a given species. Very few Indigo Bird females have been deliberately collected with males, and it appears to be largely an assumption that if a particular type of male has been collected in a given locality a female from the same locality is probably of the same species. Since three types of male may occur together in Northern Rhodesia and Nyasaland (*funerea*, *amauropteryx* and white billed *amauropteryx*) any such assumption is unjustified. Meise (1937) has recorded of birds from the Matengo highlands that female *amauropteryx* is greyer and less yellowish than females of *funerea*, whilst in my material females from the Zambezi valley areas where only *amauropteryx* type males have been collected are of the tawny yellowish type. Grant and Praed have claimed that female *nigerrima* is quite different from all other females, yet it is quite obvious that there is no species *nigerrima* as it has been defined on male characters. Chapin on the other hand has written "I must confess that I cannot distinguish between females of some of the species most commonly recognised". Thus there seems likely to be some geographical variation in female plumages though its extent and significance cannot as yet be evaluated. There is as yet no good evidence that the supposed males of different species have distinctive females. In fact all the available data point in precisely the opposite direction.

The two species *funerea* and *amauropteryx* as now defined extend into West Africa. There they are smaller than in southern Africa but of similar size so that the two species in so far as they vary geographically in size do so in an identical manner, and remain alike in size where they occur. The evidence for recognising two species thus resolves itself into the fact that breeding males can be divided into two series, of black or purple birds on the one hand and blue green or green birds on the other. The supposed differences in colour of bill and feet as specific characters fall away since as the ranges proceed northwards the two converge in this respect through loss of red in these parts of *amauropteryx*. Instead of there being two species in southern and central Africa it would from all the evidence appear equally possible that there is only a single species with polymorphic males, or perhaps better, dimorphic males (purple or green in very simple terms). The degree of gloss varies widely within an area, and occasional very lustrous individuals occur; *nigerrima* represents one extreme of this variation, with very little lustre, whilst the very glossy green *nigeriae*, of which few specimens are known, appears to be no more than an extreme variation of the green birds in the opposite direction.

It may be suggested that the melanisation of the flight feathers in East African populations of *amauropteryx* type birds, which seems not to occur or to be less marked in *funerea* type birds points against an explanation through polymorphism. But the distinction is less clear cut than much of the literature implies. Thus in East Africa Indigo Birds are often called *V. chalybeata orientalis* on account of their blackish primaries. Yet as Chapin observes *orientalis* shows a resemblance to *amauropteryx;* again in the Kivu area he found difficulty in drawing a line between what he calls *funerea purpurascens* and *chalybeata orientalis*. He notes that males from Usumbura, otherwise agreeing with *orientalis*, have rather brownish primaries. Moreover in East Africa birds with a purplish gloss but melanised primaries occur so that the possibility that only green birds are affected by this character seems to fall away. I have examined males of *orientalis* from Bagamoyo and the Amala river which agree well with white billed *amauropteryx* and whose blackish primaries can be matched with individuals from further south. In view of the overlap in characters it is very difficult to believe that *orientalis* is in fact a form of another species.

Further evidence against regarding the blackness of the primaries as a specific character (as distinct from perhaps having significance as geographical variation) is provided by Serle's collection from south-east Nigeria. He obtained 31 males assigned to *camerunensis* (greenish), five assigned to *wilsoni* (purplish) and one assigned to *nigeriae* (glossy green). Thus his series corresponds to *funerea* and *amauropteryx* in Central Africa with one extreme green variant. But in West Africa all these three forms apparently have brown primaries, so that any specific difference there cannot be linked to the colour of the primaries. Unfortunately he only collected a single female.

Apart from the question of three forms (*chalybeata*, *neumanni* and *ultramarina*) generally recognised but not examined by me, it would seem that all the other Indigo Birds can be treated as either two species (*funerea* and *amauropteryx*) or as a single polymorphic species. Whilst no categorical answer can be given as to which of these alternatives is correct, the evidence to date leans heavily in favour of the latter. An important question which may throw light upon this is whether the mouth pattern of juvenile Indigo Birds indicates the existence of more than one species, a point upon which I have traced no information. If in fact the variation in Indigo Birds is explicable as balanced polymorphism maintained by a balance of selective agencies which favour such diversity, it is doubtful whether any trinomial nomenclature should be applied to the species until the genetic mechanism involved is better understood, and any trinomials can be given some biological significance.

I am greatly indebted to C. W. Benson who examined this material with me, and to M. P. Stuart Irwin for his comments on this paper.

On the distribution of the races of the Paradise Flycatcher *Terpsiphone viridis* (Müller) in Southern Africa

by W. J. Lawson

Received 15th May, 1961

Terpsiphone viridis (Müller) occurs throughout most of Africa, from the Cape Province almost to the Sahara and to Eritrea and south-west Arabia, with about ten races deserving recognition (*vide* Chapin 1953). It is a highly variable species with some of the races exhibiting phenomenal variation in coloration within the formal taxonomic unit.

In southern Africa this species is confined to the moister eastern and south-western portions, extending westwards in the north to Damaraland, but is absent from the arid interior. In southern Africa only two races are currently recognised, these being *T. v. granti* (Roberts) 1948: Swellendam, Cape Province, and *T. v. plumbeiceps* Reichenow 1898: Malanje, northern Angola (*vide* McLachlan & Liversidge 1957). Hall (1960) however recognises *T. v. violacea* (Grant & Mackworth-Praed) 1940: Fort Hill, northern Nyasaland, as an additional valid race within southern African subcontinental limits. A fine panel of skins, numbering some 262 specimens was assembled in the Durban Museum for the assessment of variation in the southern part of the range of *T. viridis*.

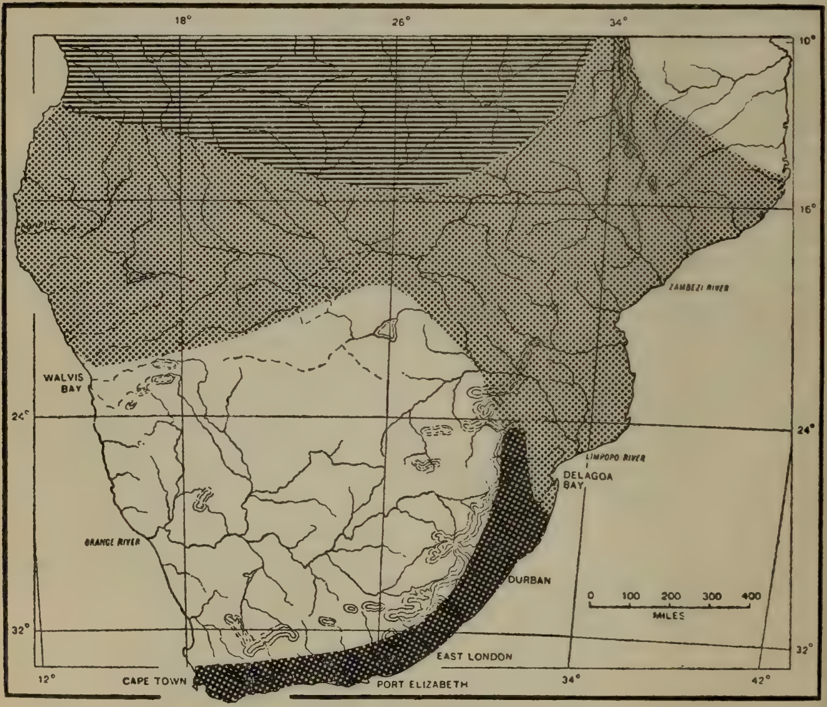
For the loan of material and other help I am grateful to the Directors of the Coryndon Museum, Nairobi, (through Mr. J. G. Williams), the Transvaal Museum (through Mr. O. P. M. Prozesky), the National Museum of Southern Rhodesia (through Mr. M. P. Stuart Irwin), and also to Mr. P. A. Clancey, Director of the Durban Museum, and Dr. James P. Chapin of the American Museum of Natural History for much valuable assistance.

The south-western Cape Province, through the eastern Cape Province, Natal, Zululand, Swaziland and the eastern Transvaal constitutes the breeding range of the race *T. v. granti* (Roberts), its distribution corresponding fairly well with the area covered by the Cape Region, eastern tropical transitional and eastern temperate transitional of Poynton (1960). The male of this race is characterised by its metallic green head and throat, and in this respect differs from the more northerly races which usually have the head or throat blue-grey or blue-black, but not green. The southern races of *T. viridis* tend to be somewhat migratory during the non-breeding season (winter), and it is this migratory habit which has in the past confused workers, due to the fact that their ranges (in the non-breeding season) overlap, resulting in some of the races of *T. viridis* being even regarded as discrete species. Mackworth-Praed & Grant (1955) subdivide *T. viridis*, as here constituted, into no less than four distinct species (*T. viridis*, *T. suahelica*, *T. plumbeiceps* and *T. nigriceps*). *T. v. granti* migrates north in the non-breeding season, complete migration taking place in the south-western and southern Cape Province, but in the eastern Cape Province, Natal and Zululand specimens have been recorded during the winter. Whether these wintering birds are local or whether they have migrated there from further south is at present unknown. Specimens of *T. v. granti* have been examined from southern and northern Mocambique, Southern Rhodesia, southern Nyasaland and Northern Rhodesia, thus showing their wide range during the non-breeding season.

North of the range of *T. v. granti*, in southern and central Mocambique, northern and western Transvaal, Bechuanaland Protectorate, northern South West Africa and probably southern Angola, Southern Rhodesia, Nyasaland and eastern Northern Rhodesia east of the Muchinga Mtns., occurs a markedly different form of *T. viridis* for which the name *T. v. violacea* (Grant & Mackworth-Praed) is available. The male of this race is completely devoid of any metallic coloration on the throat, the throat being grey and the head colour blue. This blue colour of the head has a slight metallic sheen, but is clearly not as metallic as in some of the races from further north in Africa. The under tail-coverts of *T. v. violacea* are white, as they are in *T. v. granti*. The intensity of the blue of the head appears to be somewhat variable, ranging from a decidedly greyish, non-metallic blue-grey, to a dark, almost black, slightly metallic blue. This variation, however, does not enjoy any definite geographical distribution and is best regarded as an unstable character.

Exactly where the northern breeding range limits of *T. v. granti* are in Zululand or extreme southern Mocambique is at present uncertain, but is presumably somewhere in the region of the Pongola (Maputo) River of northern Zululand, as well as in the north-eastern Transvaal. A breeding bird reported by Pinto & Lamm (1955) as having been obtained on the 5th February 1949 at Umbeluzi on its nest is certainly assignable to *T. v. violacea* on the basis of the blue coloration of the head, *T. v. granti* only occurring in southern Mocambique as a non-breeding (winter) visitor.

A single male specimen from the eastern Transvaal (Newington) has


18°
26°
34°
10°
16°
ZAMBEZI RIVER
WALVIS BAY
24°
24°
LIMPOPO RIVER
DELAGOA BAY
ORANGE RIVER
DURBAN
0 100 200 300 400
MILES
32°
32°
EAST LONDON
12°
CAPE TOWN
PORT ELIZABETH
34°
42°

Sketch-map showing the approximate ranges of the geographical races of the Paradise Flycatcher *Terpsiphone viridis* (Müller) occurring in southern Africa.

Heavy Ruled Area—*T. v. granti* (Roberts)

Light Dotted Area—*T. v. violacea* (Grant & Mackworth-Praed)

Heavy Dotted Area—*T. v. plumbeiceps* Reichenow the grey throat of *T. v. violacea* but has the head a metallic green, indicating that it is probably an interracial hybrid between *T. v. granti* and *T. v. violacea*, as these two races meet in this region of the eastern Transvaal. In addition to this intergrade there are a number of specimens which have the green head of *T. v. granti* but which have an incipient metallic coloration on the grey throat. These specimens would also appear to be intergrades between *T. v. granti* and *T. v. violacea*, the hybrid characters expressing themselves in a different manner in this case. All these intergrade specimens with incipient throat coloration are wintering birds obtained north of their summer range in localities in Northern Rhodesia, Mocambique, southern Nyasaland, Southern Rhodesia and in the eastern Transvaal, so their exact breeding localities are unknown, but which are probably in the regions where the two races meet. There are odd Natal breeding birds which adumbrate the main characters of the contiguous *T. v. violacea*. *T. v. violacea* like *T. v. granti* is migratory, and it may be found that many of the records of *T. v. plumbeiceps* wintering in central Africa may in fact be referred to this race. (*cf.* Chapin *loc. cit.*), as specimens attributable to this race have been examined by me from the Uluguru Mtns. and the Luwipa River in Tanganyika Territory, Abercorn in Northern Rhodesia, and also from Pemba Island. The southern populations of *T. v. violacea* from the western and northern Transvaal are wholly migratory, and are not to be found during the winter months on their breeding grounds.

To the west and north-west of the range of *T. v. violacea* in Angola, Northern Rhodesia west of the Muchinga Mtns., and the south-eastern Congo occurs a race of *T. viridis* which resembles *T. v. violacea* very closely but which differs from that taxon by virtue of its buff under tail-coverts. The colour of the head is blue, with very little tendency for it to be metallic. For this race the name *T. v. plumbeiceps* Reichenow is available. Specimens of *T. v. plumbeiceps* have been examined from eastern Southern Rhodesia (Inyanga). All these austral races of *T. viridis* are migratory, so the presence of *T. v. plumbeiceps* in Southern Rhodesia is by no means unexpected. The races which occur in sub-continental southern Africa are therefore:

Terpsiphone viridis granti (Roberts)

Tchitrea granti Roberts, 1948, *Bull. B.O.C.*, p. 129: Duivenhoek River, Swellendam, Cape Province.

Muscipeta perspicillata Swainson, 1837, *Bds. W. Afr.*, ii, p. 59. (preoccupied).

The male of this race is characterised by its glossy metallic green head and throat, on which character it is differentiated from the other races of *T. viridis*.

Measurements: 46 ♂♂ wing 78.0–85.5 (82.1) mm.

Material: 70 (Cape Province 11, Natal 11, Zululand 2, Swaziland 2, eastern Transvaal 5, Southern Rhodesia 3 (wintering), Mocambique 21 (wintering), Nyasaland 10 (wintering), Northern Rhodesia 5 (wintering).

Range: Ranges from the southern and south-western Cape Province through the eastern Cape Province, Natal Zululand, Swaziland and the eastern Transvaal. Intergrades north of its stated range with *T. v. violacea*.

Migrates during the non-breeding season as far north as Northern Rhodesia, southern Nyasaland and northern Mocambique.

Terpsiphone viridis violacea (Grant and Mackworth-Praed)

Tchitrea plumbeiceps violacea Grant and Mackworth-Praed, 1940, *Bull. B.O.C.*, 60, p. 93: Fort Hill, northern Nyasaland.

The male of this race is characterised by having a slightly metallic blue head, a grey, non-metallic, throat and white under tail-coverts.

Measurements: 107♂♂ wing 76.0–88.5 (83.1) mm.

Material: 112+ (Southern Rhodesia 28, Northern Rhodesia 38, Bechuanaland Protectorate 1, Mocambique 9, Tanganyika Territory 4, Nyasaland 9, Transvaal 20 and South West Africa 3.)

Range: Southern and central Mocambique, northern and western Transvaal, Bechuanaland Protectorate, northern South West Africa and probably southern Angola, Southern Rhodesia, Nyasaland and eastern Northern Rhodesia east of the Muchinga Mtns. Migrates north during the non-breeding season, i.e. the southern winter months.

Terpsiphone viridis plumbeiceps Reichenow

Terpsiphone plumbeiceps Reichenow 1898, *in* Werther, Die Mittleren Hochländer des nôrdlichen Deutsch-Ost-Afrika, p. 275: Malanje, northern Angola.

The male of this race is very similar to that of *T. v. violacea*, the only constant difference between the two being the rufous under tail-coverts of *T. v. plumbeiceps* as opposed to the white under tail-coverts of *T. v. violacea*. The blue head of *T. v. plumbeiceps* appears to be even less metallic than that of *T. v. violacea.*

Measurements: 10♂♂ wing 79.0–88.0 (83.8) mm.

Material: 12 (Northern Rhodesia 8, Angola 4).

Range: Angola, Northern Rhodesia west of the Muchinga Mtns. and the south-eastern Congo. Migrates, presumably northwards, during the non-breeding season.

The races of *T. viridis* north of the three dealt with here have been examined, but inadequate material prevents discussion on them here.

Bibliography:—

Chapin, J. P., 1953, *Birds of the Belgian Congo*, pt. iii. *Bull. Am. Mus. Nat. Hist.*, 75A.

Hall, B. P., 1960, The Faunistic Importance of the Scarp of Angola. *Ibis* 102, p. 420–442.

Mackworth-Praed, C. W., & Grant, C. H. B., 1955, *Birds of Eastern and North Eastern Africa* vol. 2.

McLachlan, G. R., & Liversidge, R., 1957, *Roberts Birds of South Africa.*

Pinto, A. A. de R., & Lamm, D., 1955, Contribution to the Study of the Ornithology of Sul do Save (Mozambique), part ii. *Mem. Mus. Dr. Alvaro de Castro*, No. 3, p. 149–150.

Poynton, J. C., 1960, Preliminary Note on the Zoogeography of the Amphibia in Southern Africa. *S. A. Journ. Sci.*, 56, (12), p. 307–312.

Some breeding and other records from Madagascar

by C. W. Benson and Charles R. S. Pitman

Received 25th May, 1961

The field notes in this paper were made by C. W. B., assisted by his wife and M. Paul Griveaud, during a stay at Tananarive from 13th to 25th

November, 1958 (see *Ibis*, 103b, 1960: 9–10). All specimens, including eggs, recorded are now in the British Museum unless otherwise indicated. The Institut de Recherches Scientifiques à Madagascar is abbreviated as I.R.S.M. The nomenclature followed is that of Rand (1936), unless otherwise indicated.

Ardeola ralloides (Scopoli)

On 23rd November a visit was paid to Imerimanjaka, seven miles south of Tananarive, where around an area of about six acres of papryus swamp there were hundreds of individuals of this species. Hidden in the papyrus, at an average of about 1½ feet above water-level, several nests were found, flimsy platforms of reeds and sticks, of diameter about 9 inches, depth 3 inches. A C/1 fresh collected measures 38.5 x 28.2 mm., a C/2 fresh 37.1 x 26.8, 38.2 x 26.3 mm. All three eggs are pale blue, and were very nest-stained. A C/3 fresh was left at the I.R.S.M. Five young, out of their nests, were caught by hand, examined and then released. They had wings ranging from 61 to 175 mm., the smallest being still mainly in down. Rand (1936) records specimens in breeding condition from Vohemar in September, and from Lake Iotry in November and December.

Some fifty *Egretta ardesiaca* and one *Ardeola idae* (in breeding dress) were also seen in this swamp, but no evidence was obtained of their breeding.

Fulica cristata Gmelin

A C/4 almost fresh was collected on Lake Mandrosesa, on the outskirts of Tananarive, on 22nd November. The eggs are typical, three being finely, but not thickly, spotted and speckled all over, with purplish brown and chocolate on a rich buff ground, while the fourth is pale creamy stone, and paler and more finely marked than the other three; size 53.0 x 37.0, 52.1 x 36.0, 48.6 x 36.2, 51.2 x 35.0 mm. A pair of adults was seen on the edge of the papyrus swamp at Imerimanjaka, on 23rd November. They were accompanied by a young bird not more than a quarter of their size.

Chlidonias hybrida sclateri Mathews & Iredale

On 22nd November, on Mandrosesa, there were at least one hundred individuals in breeding dress, three of which were collected. They were around scattered nests (not in a compact colony), shallow platforms of reeds, near the edge of the lake. The egg from a C/1 fresh collected is light greenish tinged brownish, with large blotches of sepia around the large end, but elsewhere superficial markings sparse, on underlying small spots of dull and light grey; size 39.5 x 26.5 mm. Two from a C/3 (the third egg was lost) are light stone-brown tinged greenish, boldly spotted all over with dark brown on underlying dark grey; size 37.2 x 27.2, 37.7 x 27.0 mm. Several other C/3 and a C/2 hatching, were seen. Chicks were also noted; some of which were just able to fly short distances. The stomach-contents of one collected were frogs, as were those of three adults. The foregoing supplements the comprehensive account by Milon (1949).

Centropus toulou toulou Müller

Noticed in papyrus at Tananarive, in evergreen forest at Périnet, 60 miles east of Tananarive. C. W. B. agrees with van Someren (1947) that the bubbling call is very similar to that of *C. superciliosus* (and *C. senegalensis*, in Northern Rhodesia and Nyasaland). Other calls were a higher pitched variant of the bubbling, and ''pop-pop-pop-pop-pop, kik-ik-ik-ik-ik-ik-ik-ik-ik,'' both quite distinct from the call of any *Centropus* in Northern Rhodesia or Nyasaland.

Eurystomus glaucurus glaucurus (Müller)

A female was collected at Périnet, on 16th November. It contained a fully developed egg, smooth and white, size 36.2 x 28.6 mm.

The call of this form was recorded as a low rapid, buzzing ''dza-dza-dza'', this triplet being repeated about six times. The first ''dza'' in each triplet was more emphatic than the next two. It was quite unlike the hoarse, screechy notes of the breeding forms of this species in Abyssinia or Nyasaland (Benson, 1948). For other renderings of the call, see Rand (1936) and van Someren (1947). The local name at Périnet was 'gadra-gadra', certainly an onomatope.

Caprimulgus madagascariensis madagascariensis Sganzin

A male, now in the I.R.S.M., both testes measuring 5 x 3 mm., was collected in an Eucalyptus plantation, on the outskirts of Tananarive, on 23rd November. The call, also heard in a similar habitat near Périnet, sounded exactly like ''tink, t-r-r-r'', no doubt the same as the ''ta tarrraa'' rendering by Rand (1936), and quite unlike that of any species heard in Northern Rhodesia, Nyasaland or southern Abyssinia.

Caprimulgus enarratus Gray

A chick was caught by hand at Perinet in evergreen forest on 15th November, together with its male parent, apparently shortly to breed again, as it had right testis 7 x 5, left 8 x 7 mm.

The chick, for a description of which we have to thank Mrs. B. P. Hall, is still mainly in downy plumage, wing only 95 mm., tail 40 mm. Above it is pale buffy brown very lightly and irregularly barred with blackish. On the lower back there are some more solid black markings on a more rufous background, giving a blotchy effect similar to that found in adults, but the outlines less well defined. Below, the throat is only sparsely covered in down, the breast is pale buffy brown fading to grey on the lower breast and abdomen, the whole with obsolescent grey barring. The wings and tail are in pin-feather, and there are a number such on the head, but very few on the body.

Motacilla flaviventris Hartlaub

A nest containing two young almost fledged, similar to adults in colour, was seen in a monkey-puzzle tree, ten feet above the ground, outside the I.R.S.M. buildings in Tananarive, on 24th November.

Cisticola cherina (Smith)

A C/2 fresh was collected near Périnet on 16th November. The eggs agree generally with the description by Rand (1936).

Ploceus nelicourvi (Scopoli)

Four nests were seen over a pool in evergreen forest at Périnet, 16th November. They were all within a few yards of each other, but grouped into pairs, those of each pair being less than two feet from each other. One nest contained two well feathered nestlings, and two infertile eggs, plain light blue without gloss, both measuring 20.0 x 15.0 mm. The generic name is in accordance with Moreau (*Ibis*, 1960: 299).

In addition, at Perinet on 15th/16th November, the following specimens, in or very close to full breeding condition, were collected:— *Newtonia brunneicauda* (2♂), *Tchitrea mutata* (♂), *Copsychus albospecularis* (2♂, ♀), *Neomixis striatigula* (♂), *Ixocincla madagascariensis* (♂), *Leptopterus chabert* (♂), *Calicalicus madagascariensis* (2♂, ♀), *Zosterops maderaspatana* (♂), *Spermestes nana* (♂, ♀). These specimens were shared between the British Museum and the I.R.S.M.

References:—
Benson, C. W. 1948. Geographical voice variation in African birds. *Ibis*, 90: 48–71.
Milon, P. 1949. Notes d'observation à Madagascar. *Oiseau*, 19: 195–202.
Rand, A. L. 1936. The distribution and habits of Madagascar birds. *Bull. Amer. Mus. Nat. Hist.*, 72: 143–499.
van Someren, V. D. 1947. Field notes on some Madagascar birds. *Ibis*, 89: 235–267.

More Snake and Lizard Predators of Birds

by Charles R. S. Pitman

Received 11th February, 1961

These notes are to a great extent concerned with Africa; *ibid* 78 (5) (6) (7). Much of the information has been acquired in the course of correspondence.

PART I

SNAKES

(i) Arboreal

(a) *Dispholidus typus* (A. Smith), Boomslang.

AFRICA: NYASALAND. Mr. R. C. H. Sweeney (Dept. of Agriculture), in his open-air vivarium with a *Cassia* tree in the centre, has seen captive boomslangs holding in the mouth respectively one *Lagonosticta* sp., one *Uraeginthus angolensis* (L.) and one *Pycnonotus xanthopygos* (Hemprich and Ehrenberg), which they had caught. Many birds landed in this *Cassia* and it is probable that others were eaten. Though pigeons and doves landed in other *Cassia* trees in the garden, what was noticeable none came to the tree in the vivarium evidently having detected the resident snakes.

Also, Sweeney (1957) shot a ♀ *D. typus* near the entrance to a nest hole in a large breeding colony of some 200 White-fronted Bee-eaters, *Melittophagus bullockoides* (A. Smith) in a river bank some 15 feet above the water level. The snake contained three undeveloped nestlings. The reptile was near the top of the bank and was being vigorously assailed by the bee-eaters which were circling and swooping down towards it.

NORTHERN RHODESIA. Mr. J. E. Newby has fed small fowls' eggs to *D. typus* in captivity. Like cobras the boomslang swallows an egg complete, and digestion of the shell and its absorption normally takes about two to three days.

SOUTHERN RHODESIA. D. G. Broadley (^{1}: pp. 36–37) records that two stomachs examined contained fledglings, and that captive *D. typus* will readily take offered birds' eggs.

Mr. B. U. Neuby Varty while watching the nest of a Scimitar Bill, *Rhinopomastus cyanomelas schalowi* Neum. left it for a few days after it contained two eggs. On his next visit there was a boomslang in the nest (in a hole in a tree) and no eggs. On another occasion he saw a very long boomslang emerge from a barbet's nesting hole.

SOUTH AFRICA. Miss M. Courtenay-Latimer, Director of the Port Elizabeth Museum, writes "The biggest nest robber in our forests is *Dispholidus typus*". She quotes three instances of its predation of the Cape Canary, *Serinus canicollis* (Swainson), when respectively young chicks, eggs of five days incubation, and eggs just hatching were taken, and also records that a boomslang took a full fledged family of the Bokmakierie, *Telophorus zeylonus* (L.) which were ready to leave the nest.

According to V. Fitzsimons and C. K. Brain (^{23}: p. 103), in the Kalahari Gemsbok National Park, the main food of *D. typus* includes nestling birds and eggs.

GENERAL. The boomslang is one of the snakes which, in captivity, feeds freely on dead birds, though it approaches them more cautiously than it does lizards or chameleons. The mouth is gaped and placed over the body of the bird and a 'chewing' motion started. The snake then works to the head and starts to swallow. Bird movement in a tree in a vivarium attracts a boomslang's attention.

(b) *Thelotornis kirtlandii* (A. Smith), Bird Snake, Twig Snake or Vine Snake.

AFRICA: NYASALAND. According to Sweeney birds are one of the chief items of its diet in the Shire Valley region where it is very common. In three years he records three instances of Weaver birds (species not determined) being eaten; one case of *Ploceus*? *intermedius* Rüppell in the process of being swallowed; two regurgitated *Colius indicus* Latham (Red-faced Mousebird) from one snake; *C. indicus* from the stomach of another snake; one regurgitated *Serinus* sp., believed to be *Serinus mozambicus* (Müller), from another; *S. mozambicus* seen to be stalked and caught; one *Lagonosticta senegala* (L.) caught; and another snake contained a *Passer griseus ugandae* Reich. Grey-headed Sparrow. A *Lagonosticta* sp. was seized when it landed in a tree in an open vivarium. Although many wild birds landed in this tree or even fed on the ground inside the vivarium, this was the only bird *seen* to be taken by a *Thelotornis*.

Sweeney believes that bird predation by *Thelotornis* is not a rarity under some ecological conditions and then birds may be one of the main items in its diet. In a Nyasaland region where this species is common 40 per cent had fed on birds in the many cases in which the prey was known. It is possible that when lizards are relatively scarce *Thelotornis* feeds more commonly on birds.

NORTHERN RHODESIA. Mr. C. D. Simpson graphically describes how a 3 ft. 8 in. *T. kirtlandii* stalked a small Zebra Finch, *Estrilda subflava* (Vieillot), which was perched in a tree. "The snake hung, head downwards from a branch, swinging gently to and fro, coming closer to the bird at each swing. When in striking distance, it struck out swiftly, held onto the bird for a moment or two, then released it. The bird died in 8½ minutes and the snake came down and ate it on the ground, starting at the head."

SOUTHERN RHODESIA. Broadley (1: p. 38) records that a captive *Thelotornis kirtlandii oatesii* Günther consumed two birds' eggs, and that captive *T. k. capensis* A. Smith seem to prefer cold-blooded prey "although birds and their eggs were occasionally taken".

At the Regent's Park Gardens of the Zoological Society of London *Thelotornis* specimens are very difficult to keep at winter time as usually they feed exclusively on lizards.

(c) *Chrysopelea ornata* (Shaw), Gold and Black Tree Snake.

This is one of the so-called Asian 'flying' snakes, which is adapted for gliding and which may in one movement descend as much as 20 ft.

S. E. ASIA. It is presumably a bird eater, for in captivity (25: p. 312) it takes sparrows.

(d) *Coelopeltis* (*Malpolon*) *monspessulana* Hermann, Montpellier Snake.

This is a back-fanged species which attains a length of 7 ft.

EUROPE: S. SPAIN. Guy Mountfort (2) writes that he was reliably informed that this big snake, in the Coto Doñana, sometimes raids the heron colonies, taking eggs and nestlings from the nests in the bushes. But he was not able to verify this by first hand observations.

PORTUGAL. *Vide* (3: p. 523) Jennifer Owen, with reference to the 1957 autumn migration through south-west Portugal "Twice, a large snake, probably *Celopeltis monspessulana*, was seen to take a small bird, once a Whitethroat and once a Nightingale", from a hedge.

(ii) Mambas

(a) *Dendroaspis polylepis* Günther, Black Mamba.

AFRICA: TANGANYIKA. Mr. Myles Turner, a Warden in the Serengeti National Park, describes how a black mamba over 8 ft. long lived in the roof of a house at Banagi in 1957, feeding on the Square-tailed Swifts, *Apus affinis* (Gray) which were nesting in the verandah eaves.

NYASALAND. Sweeney *in litt.* has found (1958) the remains of a pigeon, *Treron* sp., probably *Treron delalandii* (Bonaparte), in a mamba near Sorgin; and he further records that in captivity *D. polylepis* readily devours dead doves, *Streptopelia* spp.

(b) *Dendroaspis angusticeps* (A. Smith), Green Mamba.

AFRICA: KENYA. Mr. J. G. Williams, of the Coryndon Museum, Nairobi, (1959) at Kilifi on the Kenya Coast, killed a green mamba which had a Greenbul, *Andropadus importunus* (Vieillot) in its stomach.

NYASALAND. According to Sweeney, green mambas in captivity readily devour dead doves, *Streptopelia* spp.

(c) *Dendroaspis jamesoni* (Traill), Forest (Green) Mamba.

AFRICA: UGANDA. In the Bwamba Forest, on the Congo border at the edge of the Ituri Forest, Mr. T. Mathews shot an unidentified green tree snake believed to be a mamba (it could have been the boomslang, *Dispholidus typus* C.R.S.P.), which had two mannikins, *Spermestes* sp. in its stomach.

(iii) Cobras

General. INDO-PACIFIC REGION. Loveridge (^{10}: pp. 149 and 151) mentions how cobras, *Naja* spp., in their fondness for chicks and eggs, invade hen-houses. The eggs are swallowed whole, and the gastric juices take two days and nights to dissolve the shell of a fowl's egg. He further records that birds are also taken.

AFRICA: KENYA. Mr. W. P. Keller (*in litt.*) when in Masai Land "a point of interest in regard to snakes is that cobras especially are sometimes found in huts and houses where poultry are kept. I have never heard of a single instance where either the birds or eggs had been molested, while the snakes seem intent only on rats that frequent such places."

COMMENT. The cobras concerned are *Naja haje* and *Naja nigricollis*, and this freedom from predation of the poultry and their eggs is contrary to what is usual from the Sudan to the Cape. C.R.S.P.

SOUTHERN RHODESIA. Mr. P. St. J. Turnbull-Kemp, Senior Warden of the Rhodes-Inyanga Estate, National Parks Department, saw an engorged cobra leave the nesting hole of the Giant Kingfisher, *Megaceryle maxima* (Pallas).

SOUTH AFRICA. Lieut-Colonel J. Stevenson-Hamilton (^{12}: p. 117) "Fowl-houses must be protected by small wire mesh against cobras; the local type, known as *mfezi* is very fond of young chickens, and if one succeeds in effecting an entrance, it is sure to kill several of the fowls, whether it finds any chicks or not."

(a) *Naja haje* (L.), Egyptian Cobra or Banded Cobra.

AFRICA: SOUTHERN RHODESIA. Neuby Varty writes that a banded cobra for a while raided a hen-run every day and stole eggs.

(b) *Naja nigricollis* Reinhardt, Black-necked or 'Spitting' Cobra.

AFRICA: GHANA. Mr. G. T. Crellin describes how one of these cobras was killed, in a fowl-run, coiled amongst a broken sitting of eggs after it had killed three hens.

TANGANYIKA. Myles Turner has twice seen the 'spitting' cobra about to strike a bird. Once he came on one poised over two juvenile Coqui Francolins, *Francolinus coqui* (A. Smith); and another time saw a very large example " . . . about to strike a small bird. The bird was on the ground staring up at the cobra whose head was not one foot away . . . the bird made no movement to escape".

NORTHERN RHODESIA. Mr. P. S. M. Berry (1959) shot a 5 ft. 'spitting' cobra, *Naja nigricollis crawshayi* Günther in a fowl-run "where it was presumably searching for hens' eggs".

Newby (1960) describes how a 4½ ft. *Naja n. crawshayi* captured in a fowl-run near Kitwe disgorged 12 hen's eggs while in transit, and then within 24 hours had reconsumed eight of these eggs which were returned to it.

According to Newby, *Naja nigricollis* when in captivity will take small fowls' eggs, which are swallowed whole. Digestion of the shell and absorption takes about two to three days.

SOUTHERN RHODESIA. Broadley ([1]: p. 63) records that these "cobras are persistent raiders of poultry runs . . . A 6ft. cobra killed at Irisvale contained two well-grown chickens."

Mr. J. Bennefield writing from Bulawayo "We have shot several 'spitting' cobras in our fowl-run, but have never caught them in the act of removing the eggs."

(c) *Naja flava* (Sparrman), Cape Cobra or Yellow Cobra.

SOUTH AFRICA. Miss Courtenay-Latimer *in litt.* "Yellow cobra is responsible for eating plover, korhaan (bustard) and sandgrouse eggs and chicks." Quoting specific cases:— Cape Dikkop, *Burhinus capensis* (Lichtenstein), three eggs devoured at Waverley, Cape Province (6th October, 1928): Blue Korhaan, *Eupodotis caerulescens* (Viellot), three eggs taken at Thebus, C.P. (9th August, 1925); and at Teviot, in September 1923, a Cape cobra ate 20 sets of three eggs before it was killed, out of 35 nesting Namaqua Sandgrouse, *Pterocles namaqua* (Gmelin) on a ridge of rocky hills.

According to Fitzsimons and Brain ([23]: pp. 103–104), in the Kalahari Gemsbok National Park, small birds are included in the food of the Cape Cobra.

(d) *Naja melanoleuca* Hallowell, Black-lipped or Forest Cobra.

UGANDA. *Vide* ([4]: para. 346) a cobra consumed a sitting of duck's eggs at the Kajansi Fish Farm.

(e) *Naja tripudians* (Merrem), Indian Cobra.

S.E. ASIA. Colonel F. Wall ([25]: p. 470) "Sometimes birds are attacked and killed, especially poultry . . . hen and six chicks killed one night." A cobra which got into a quailery killed thirteen quails, but only one was swallowed. Wall records that a guinea-fowl egg taken from a cobra stomach was set under a hen and hatched out, and on another occasion the same was done with a hen's egg. Also, six guinea-fowl eggs swallowed out of a sitting of fifteen, which were recovered were set and three hatched. Experiments indicate that the gastric juices of a cobra take 48 hours to dissolve egg-shells.

(f) *Pseudohaje goldii* (Boulenger), Gold's Arboreal Cobra.

CONGO. Professor R. Laurent ([5]: p. 126) "An example which lived three months in captivity . . . fed exclusively on batrachians: it invariably refused mammals and birds."

(iv) Sea Snakes

BORNEO. According to Mr. Tom Harrisson, Curator, Sarawak Museum ([6]: p. 220) "Sea snakes often eat the eggs of the Black-naped Tern, *Sterna sumatrana*" Raffles.

In litt. Harrisson informs me that these "sea snakes" attain a length of "5 ft. or so", and regularly come "onto the islet and I once found three there in one day. Apparently it cannot *break* eggs (some snakes do, of course, like the racers) but swallows them and digests them slowly. I once found one with *three* egg swellings along its length, lying in the scrub above high water mark. I fancy they concentrate on the smaller eggs of the Black-naped, which nest exclusively on the lower levels, whereas the larger Brown-winged (*Sterna anaetheta* Scopoli) nest higher up". The identity of this sea snake is believed to be *Laticauda* (*Platurus*) *colubrina* (Schneid.), Common Banded Sea Snake or Amphibious Sea Snake. The sea snakes of this genus are the only ones which habitually come onto dry land, and which grow to so large a size, with a maximum length of 9 ft., though the average is about 3 ft. See ([10]: p. 167).

(v) *Notechis scutatus* (Peters), Australian Tiger Snake.

AUSTRALIA: TASMANIA. Mr. John Warham ([7]: p. 607) suggests that the venomous tiger snake, *N. scutatus* probably preys on the eggs and small chicks of the Little Penguin, *Eudyptula minor* (Forster) breeding on Cat Island (Bird Sanctuary) in the Bass Strait.

(vi) Vipers

(a) *Vipera berus* (L.), Adder.

EUROPE: BRITAIN. Maxwell Knight ([8]: p. 86) "Adders will also take nesting birds. I have seen a wren's nest in a tree some four feet from the ground where an adder had taken several young in broad daylight—adders can climb well."

Mr. G. D. Lake (*in litt.*) found a linnet's nest with four eggs and when next day he had a look at it an adder was descending from the empty nest. The presumption was that the adder had taken the eggs.

Mr. Max Wenner took a photo of a young Ring Ouzel, *Turdus torquatus* L. being 'mesmerized' by an adder. The snake was unfortunately disturbed and departed before the end of the act.

(b) *Vipera latastii* Bosca, Latastes' Viper (attains 2 ft.).

EUROPE: SPAIN. According to Guy Mountfort ([2]), in the Coto Doñana, this is a "local species which preys on ground-nesting birds".

(c) *Vipera lebetina* (L.) (attains 4½ ft.).

CYPRUS. The Bannermans ([9]: p. 148) referring to the Cyprus Wren, *Troglodytes t. cypriotes* (Bate) "Hughes had the good fortune to see these tiny birds mobbing one of the ugly thick vipers, the only dangerous snake in the island."

Such bird behaviour is indicative of this snake's predatory habits, as the birds were evidently treating it as an enemy.

(d) *Bitis arietans* (=*lachesis*) (Merrem), Puff Adder.

AFRICA: NYASALAND. By night, on the Port Herald road, Sweeney (1958) killed a 3 ft. 4 in. puff adder which had swallowed an unidentified species of nightjar (Caprimulgidae). A road constitutes an open space onto which rodents stray and, in consequence, particularly in enclosed country puff adders at night frequent roads to hunt for prey. Similarly, the nocturnal nightjars find the open space of the road provides a wide arc of vision in their search for flying insects.

SOUTH AFRICA. *Vide* (^{24}: p. 27), in the Kruger National Park "A large puff adder was seen to catch a full grown Kurrichane Button Quail, *Turnix lepurana* and swallow it, starting with the head."

(e) *Bitis gabonica* (Duméril and Bibron), Gaboon Viper.

AFRICA: TANGANYIKA. Mr. C. J. P. Ionides made a young Gaboon viper, which had a feather sticking on one side of its mouth, disgorge an unidentified bird about the size of a Kurrichane Thrush. He is now prepared to believe those Africans who claim that this snake does "take young chicks on occasion".

NORTHERN RHODESIA. At Ndola, Mr. D. Campbell (1959) caught a large Gaboon viper when in the process of swallowing a chicken.

Newby records the shooting of a 4 ft. *Bitis gabonica* in a fowl-run near Kitwe while it was swallowing a full-grown fowl.

SOUTHERN RHODESIA. Turnbull-Kemp has given me three records (1956, 1957 and 1960) of domestic poultry taken by *Bitis gabonica.*

COMMENT. It is unlikely that Gaboon vipers deliberately raid fowl-runs, to which they are probably attracted by the rodents which frequent such places. C.R.S.P.

(vii) Pit Vipers

(a) *Ancistrodon acutus* (Günth.), Long-nosed Pit Viper. Attains a length of 5 ft.

ASIA: CHINA and FORMOSA. *Vide* Loveridge (^{10}: p. 179), a bird was disgorged by one of these snakes.

(b) *Ancistrodon rhodostoma* (Boie), Malayan Pit Viper.

MALAYA and ARCHIPELAGO. Tweedie (^{26}: pp. 114–115) says it takes birds.

NORTH AMERICA.

(c) According to Albert and Anna Wright (^{21}), four of these pit vipers prey on birds:—

p. 906 *Ancistrodon contortrix contortrix* (L), Southern Copperhead.
p. 913 *A. c. mokeson* (Daudin), Copperhead.
p. 920 *Ancistrodon piscivorus piscivorus* (Lacépède), Water Moccasin or Cotton-mouth Moccasin.
Mr. B. S. Wright, Director North-eastern Wild Life Station, New Brunswick, Canada (*in litt.*) also lists *A. p. piscivorus* as a bird-eater.
p. 924 *A. p. leucostroma* (Troost), Water Moccasin.

(d) *Trimeresurus wagleri* (Boie), Wagler's Pit Viper. Attains 980 mm.

ASIA: BORNEO (and MALAYA and ARCHIPELAGO). According to Harrisson, this snake occurs on the Turtle Islands, one of which is five miles off shore. It is known to take baby turtles and might take the young and eggs of sea birds.

Loveridge ([10]: p. 187) describes it as a "climbing" snake, whose food consists chiefly of lizards and birds. Perhaps it should have been included with the arboreal species.

Tweedie ([26]: p. 117) says its food includes birds.

Wall ([25]: p. 559) referring to genus *Trimeresurus* (Lacép.), food also birds.

(e) *Crotalus viridis* (Rafin.), Prairie Rattlesnake; attains a length of 5½ ft.

CANADA: ALBERTA. See Wishart, with reference to *Pituophis catenifer*. The Wrights ([21]: p. 1005) include "some birds" in its food.

(f) Rattlesnakes.

UNITED STATES and CANADA. According to Albert and Anna Wright ([21]), eight rattlesnakes of the Genus *Crotalus* are known to prey on birds, including *Crotalus viridis* (pp. 939–1033). B. S. Wright (*in litt.*) lists *Crotalus* spp. as bird-eaters.

(g) Ground Rattlesnakes.

UNITED STATES. *Vide* ([21]), two of these snakes are known to prey on birds:—

(p. 1046) *Sistrurus catenatus catenatus* (Rafin.), Prairie Rattlesnake.
(p. 1054) *Sistrurus miliarius miliarius* (L.), Ground or Pigmy Rattlesnake.

(viii) Egg-eater

Dasypeltis scabra (L.), Egg-eater.

AFRICA: SUDAN. At Lake Keilak, Kordofan, Sweeney (1954) collected specimens in two weaver-bird (*Ploceus*) nests.

TANGANYIKA. On the Mkulumuzi river, Tanga, (1949) Sweeney found an egg-eater in a weaver-bird (*Ploceus*) nest.

NYASALAND. During 1956 and 1958, Sweeney found specimens in four weaver-bird (*Ploceus*) nests along the Shire and Ruo rivers.

NORTHERN RHODESIA. Newby describes how an unusually large (1100 mm.+) egg-eater was seen by Africans being attacked so determinedly by birds of the "thrush type", whose nest it was raiding, that it fell 20 ft. to the ground. Its right eye shield and oculars had been damaged by the birds' pecking. The snake was brought to him, and in captivity it fed on fowls' eggs.

SOUTHERN RHODESIA. Broadley ([1]: p. 59) records that captive egg-eaters would only take birds' eggs, and hatchlings consistently refused gecko eggs.

(*to be continued*)

- 5 FEB 1962

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 4*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 4*s*., payable to the Hon. Treasurer, C. N. Walter, Finsbury Pavement House, 120 Moorgate, London, E.C.2.

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Miss E. Forster, The Double House, Wiveton, Holt, Norfolk.

DINNERS AND MEETINGS FOR 1962

20th February, 20th March, 17th April, 15th May, 18th September, 16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

-7 MAR 1962
PURCHASED.

Volume 82
No. 3

March
1962

BRITISH MUSEUM (NATURAL HISTORY)
- 7 MAR 1962
PURCHASED.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Volume 82

Number 3

Published: 1st March, 1962

The five hundred and ninety-sixth meeting of the Club was held at the Rembrandt Hotel, London, on Tuesday, 20th February, 1962.

Chairman: Capt. C. R. S. Pitman

Members present, 24; Guests 6; Total 30.

Site tenacity in the Sooty Shearwater

Between 1942 and 1957 Dr. L. E. Richdale stayed on the islet of Whero, off Stewart Island, during the nesting seasons of the Sooty Shearwater.

The birds' choice of nesting site formed part of his study and it was upon this subject that he addressed the meeting, illustrating his paper with photographic slides of the birds and the plant life of the islet.

Dr. Richdale has kindly supplied this brief account of his contribution :-

In the course of a study of the Sooty Shearwater, *Puffinus griseus* (Gmelin), in New Zealand there arose 1,235 opportunities of determining whether the birds retained the same burrow year after year and of assessing the extent of any shift.

The information was gathered over a period of fifteen seasons, but I was able to work on this particular aspect of the research for only seven of them, *viz.* the seasons beginning 1942, 1943, 1944, 1949, 1952, 1953 and 1956. This gave information on the effect of time, but another factor affecting the shift was the matrimonial status of the birds. The distance of the shift increased with the passing of time. For example, after one year the mean shift for 266 records was 4.0 feet ± 7.4; range 0 to 78 feet. After 11 to 14 years the mean for 104 records was 13.4 feet ± 10.2; range 0 to 58 feet. The figures for the full 1,235 records were 7.7 feet ± 8.9; range 0 to 92 feet.

Now let us examine the effect of the matrimonial status. Of 274 birds found breeding at my first visit and again found breeding at the second, the mean shift was 5.8 feet ± 8.4; range 0 to 62 feet. Of 603 birds breeding

---

Correction: The caption of the map on page 28 of the February *Bulletin* illustrating the ranges of three races of the Paradise Flycatcher, *Terpisphone viridis* (Muller) occurring in southern Africa should have read:

Heavy Dotted Area — *T. v. granti* (Roberts)

Light Dotted Area — *T. v. violacea* (Grant & Mackworth-Praed)

Heavy Ruled Area — *T. v. plumbeiceps* Reichenow at the first visit and "unemployed" at the second, the mean shift was 7.1 feet ± 7.7; range 0 to 63 feet. Of 358 birds which were "unemployed" at the time of each visit, the mean shift was 10.2 feet ± 10.5; range 0 to 92 feet. Of 55 mated pairs (110 birds), where the pair bond was still intact at the second visit, the mean shift was only 2.6 feet ± 5.8; range 0 to 32 feet: therefore breeding success tends to reduce the amount of shifting. After 1–2 years 58% of the breeding birds returned to the same burrows; after 3–4 years 28% did so; after 5–6 years 28%; after 7–8 years 15%; after 9–10 years 7%; and after 11–14 years only 3% were still using the same burrows. It is obvious, therefore, that, contrary to what has been so often stated, Sooty Shearwaters do not invariably occupy the sambe urrow year after year, but they do tend to remain in the same neighbourhood.

Further comments on an Angolan Sunbird

by S. Dillon Ripley

Received 20th April, 1961

In 1960 I described a new sibling species of Sunbird from northern Angola as *Nectarinia sororia* (Postilla, Yale Peabody Mus. No. 43: 2). This species is remarkably like *Nectarinia verticalis* from which it differs in the female by lacking the green metallic cap, by having darker underparts, and by having different proportions, shorter bill and longer wing. This species is apparently sympatric with *verticalis* in an ecological sense, both species occurring in gallery forest.

Dr. A. L. Rand has pointed out to me that a single male specimen of *Nectarinia verticalis bannermani* (Grant and Mackworth-Praed) 1943, *Bull. Brit. Orn. Cl.* 63, 63, from Molombo, Angola, in the American Museum of Natural History collection commented on by Chapin (1954, *Bds. Bel. Congo*, 4: 214), matched my description of the females of *sororia* in size and proportions.

In their published description of this form, Grant and Mackworth-Praed had only males to describe. These are similar in plumage to males of the races of *verticalis* in the area, *viridisplendens* or *böhndorffi*, but have shorter bills.

I have now compared our females with the male from the American Museum and a single male in our series from 40 km. east of Cacolo, northern Angola, which I had not used in my previous description as the tip of the bill was broken. I consider that these males represent the males of *sororia* (=*bannermani*) and that it confirms the existence of this sibling species. These specimens have wing measurements of 69, 70 mm. and bill measurements of 22, 23 mm. In colour they are similar to *böhndorffi* from the same locality but with paler underparts and duller, more matt blue iridescence on the head and throat. Further specimens have been located from northern Rhodesia as well as the southern Congo. It appears evident then that *Nectarinia bannermani* (Grant and Mackworth-Praed) should be considered a species with *N. sororia* Ripley as a synonym. The range extends from the southern Congo to northern Angola (Duque de Bragança, Molombo and Cacolo) east to northern Rhodesia (Mwinilunga).

Variant winter plumage in the Scaup

by JAMES M. AND JEFFERY G. HARRISON

Received 24th August, 1961

In previous notes we have described a variant winter plumage in female Tufted Duck, *Aythya fuligula* Boie, [1].[2].[3]. in which the normally white underparts are flecked with dark brown and we suggested that this was probably a reversionary variant towards a dark belly, such as occurs in some other species in the genus *Aythya*.

The occurrence of a similar variant in the Scaup, *Aythya marila* (Linnaeus), another normally white-bellied species, supports this view. In a series of 36 in our collections, three exhibit minimal but definite dark brown flecking of the belly. They are as follows:—

1.	23rd October, 1886:	Holy Island, Northumberland. ♂ Juvenile Ex. collection Abel Chapman.
2.	21st January, 1939:	Rye Harbour, Sussex. ♀ Ad.
3.	16th February, 1934:	Tetney, Lincolnshire. ♀ First winter.

Of the four Tufted Duck which we have recorded as showing this type of variant, one was not sexed, but the other three were all females moulting into or in first winter plumage. It will be noted that of these three Scaup one is a juvenile male, one a first winter female and one an adult female. In this respect it is to be noted that Bryan Sage[4]. in his paper on Ferruginous Duck *Aythya nyroca* (Güldenstädt) x Tufted Duck *A. fuligula* hybrids records a similar type of plumage in one such hybrid collected in Holland, this bird apparently being an adult female.

The fact that the hybridisation of these two white-bellied species can result in a dark-bellied hybrid brings this character into the same category as the bimaculated facial pattern revealed in hybrids involving the Mallard, *Anas platyrhynchos* Linnaeus; Wigeon, *Anas penelope* Linnaeus; Teal, *Anas crecca* Linnaeus, and Shoveler, *Anas clypeata* Linnaeus[5], and also in variants of the Teal resembling in this pattern the Baikal Teal, *Anas formosa* Georgi[6], in which there is no question of hybridisation.

While confirming our views as to the probable evolutionary significance of the dark flecking in female Tufted Duck, Sage (*loc. cit.*) remarks that the occurrence of such characters in other *Aythya* species would strongly support this theory. It is of interest therefore to be able to record this variant as occurring in the Scaup.

References:—

[1] Harrison, James M. and Jeffery G. "On varieties of the Tufted Duck, with an account of an unrecorded type of variation". *Bull. B.O.C.* Vol. 80. pp. 25–28. 1960.

[2] Harrison, James M. and Jeffery G. "Further remarks on female plumages of the Tufted Duck". *Bull. B.O.C.* Vol. 80. 141–2.

[3] Harrison, James M. and Jeffery G. "Variant winter plumage of the female Tufted Duck". *Bull. B.O.C.* Vol. 81, 103–105.

[4] Sage, Bryan L. "Notes on some Ferruginous White-eye x Tufted Duck hybrids". *Bull. B.O.C.* In press.

[5] Harrison, James M. "Comments on a Wigeon x Northern Shoveler hybrid". *Bull. B.O.C.* Vol. 79. pp. 142–151. 1959.

[6] Harrison, James M. "The Baikal Teal in the British Isles; a new record and a note on the "Bridled" Face Pattern". *Bull. B.O.C.* Vol. 78, pp. 105–107. 1958.

Comments on the typical race of *Eremomela icteropygialis* (Lafresnaye)

by P. A. Clancey

Received 20th June, 1961

Lafresnaye described the small warbler species *Eremomela icteropygialis* (Lafresnaye), 1839: lower Orange River, north-western Cape Province, on a specimen presumably collected by Levaillant towards the close of the eighteenth century. The label on the specimen bears in the handwriting of Lafresnaye the locality "des Elephants" (*i.e.*, Olifants R., western Cape), corrected in the same handwriting to "d'Orange', and this same worker states in the original description that the specimen was "said to have come from the Orange River." Macdonald (1957) cast doubt on the stated provenance of the *Type*, and doubted if the species occurred on the lower reaches of the Orange River and as far south as the Olifants R. in the west, and based his taxonomic findings on such a mistaken belief. Winterbottom (1958) and Clancey (1959) have both shown that the species occurs widely throughout much of the western Cape, from at least the Richtersveld south to Doornbaai, south of the Olifants River mouth, and on the basis of the observations of the two workers named it is evident that no valid objection can be advanced to preclude the lower Orange River being accepted by researchers as the correct type-locality of *E. i. icteropygialis* on the grounds that the species does not occur there. Further, as there are cogent reasons for believing that the *Type* was collected by Levaillant, it is reasonable to assume that it was not obtained to the north of the Orange River, because, while it is known that this traveller-cum-naturalist did reach the lower Orange River in the neighbourhood of Pella Drift, it is still extremely doubtful if he penetrated any distance into what is now Great Namaqualand, and Forbes (1958) has recently produced a heavy weight of evidence to show that Levaillant did not enter Great Namaqualand at all (*cf.* Grant (1957)) .The possibility that the *Type* was not collected by Levaillant likewise raises no difficulty, as the hinterland of what is now South-West Africa was *terra incognita* at the time the *Type* of *E. i. icteropygialis* was collected (certainly long before 1839).

Macdonald, *loc. cit.*, records that of a series submitted to Mr. J. C. Greenway an old Andersson skin from Otjimbingwe, Swakop River, Damaraland, in the British Museum (Nat. Hist.) collection, most closely resembles the *Type* specimen of *E. i. icteropygialis*, now in the collection of the Museum of Comparative Zoology, Cambridge, Mass., U.S.A., the latter specimen being probably well over 150 years old at the time the comparison was undertaken. I do not believe that subspecific taxonomy is ever adequately furthered by comparisons between such antediluvian material, or that the use of "Otjimbingwe" as a sort of putative type-locality of *E. i. icteropygialis* serves other than to confuse that which is in effect quite straightforward, and, moreover, irrefutable on the basis of the fine fresh series now available in South African museums (*cf.* White (1961)).

In my revisionary notes on the Yellow-bellied Eremomelas of southern Africa (Clancey, *loc. cit.*), I showed that the populations of the western Cape Province (Richtersveld, south to Doornbaai), the north-western

Cape (east to Bushmanland and Kenhardt), and southern Great Namaqualand (all topotypical of *E. i. icteropygialis*) and those of the Asbestos Mountains, north of Prieska on the central Orange (topotypical of *E. i. perimacha* Oberholser, 1920: Asbestos Mountains, northern Cape), are not separable in any way. On the basis of this finding I placed *E. i. perimacha* in the synonymy of *E. i. icteropygialis*.

In the light of White's criticisms, I have re-studied the good series in the Durban Museum, and confirm that *E. i. perimacha* is a straight synonym of *E. i. icteropygialis*. White based his findings on a study of the British Museum series, but I submit that his material was inadequate, as by Macdonald's telling this collection does not contain any topotypical *E. i. icteropygialis*, whereas the Durban Museum collection possesses series from both the north-western Cape and the Asbestos Mountains. The material in the Durban Museum reveals graded change in South-West Africa from the typical race to paler backed, whiter throated and breasted and clearer yellow bellied birds in Damaraland, to which the name *E. i. sharpei* Reichenow, 1905: Windhoek, is applicable. A further study of our material confirms my earlier view that this is a good race, which ranges from south-western and southern Angola, southwards through the Kaokoveld and Ovamboland to Damaraland, northern Great Namaqualand, and the western, central and southern Bechuanaland Protectorate. As stated, it grades into the nominotypical race to the south of its ascertained range in South-West Africa and to the eastward, as shown by a good series in the National Museum of Southern Rhodesia from just north of the Molopo R. (discussed by White, *loc. cit.*, under "The Bechuanaland form").

Literature cited:—
Clancey, P. A. 1959 *Durban Museum Novitates*, vol. v, 16, pp. 204–206.
Forbes, V. S. 1958 *Ostrich*, vol. xxix, 2, pp. 79–85.
Grant, C. H. B. 1957 *Ostrich*, vol. xxviii, 2, pp. 83–97.
Lafresnaye, F. de 1839 *Rev. Zool.*, p. 258.
Macdonald, J. D. 1957 *Contribution to the Ornithology of Western South Africa*, p. 136.
White, C. M. N. 1961 *Bulletin of the British Ornithologists' Club*, vol. 81, 5, pp. 90–91.
Winterbottom, J. M. 1958 *Bulletin of the British Ornithologists' Club*, vol. 78, 7, pp. 132–133.

More Snake and Lizard Predators of Birds

by Charles R. S. Pitman

PART II

(ix) Constrictors

(a) *Python sebae* (Gmelin), African Python.

AFRICA: SUDAN. Sweeney (1954) records an 8 ft. python swallowing a Guinea-fowl *Numida meleagris* (L.); three specimens (1953), between 3 and 4 ft., each containing bird remains—the only identifiable bird, in two of them caught on the same day within 100 yards of each other, being the Chestnut-crowned Sparrow Weaver, *Plocepasser superciliosus* (Cretzschmar); 4½ ft. specimen (1953) when caught disgorged three Guinea-fowl chicks; 3½ ft. specimen (1953) contained an unidentified sparrow; 3½ ft. specimen (1953) disgorged an adult Rock Bantam, *Ptilopachus* *petrosus* (Gmelin); and 4 ft. specimen (1955) disgorged two unidentified Ploceidae.

KENYA. Mr. D. D. Reucassel came across a number of Black-winged Stilts, *Himantopus himantopus* (L.) hovering over the water and creating a terrific din above a huge python which was constricting an Egyptian Goose, *Alopochen aegyptiacus* (L.) some 30 ft. from the bank.

UGANDA. *Vide* (4: para. 212) a python shot in Karamoja was "found to have a partially decomposed knob-nosed goose in its stomach".

TANGANYIKA. Sweeney (1950) records a 5 ft. specimen in the Usambara Mountains which contained an unidentified thrush.

NYASALAND. Sweeney (1959) describes how a 10 ft. specimen, caught in a village hen-house, disgorged three large domestic chickens; and in the same village a few days later another python, when captured, disgorged two chickens. In 1957 two specimens, 3 and 3½ ft. in length, killed by the Ruo river contained unidentified small birds (Ploceidae?) A 9 ft. specimen (1957) disgorged two Guinea-fowl, *N. meleagris*. A 3 ft. specimen taken (1957) in an African hut contained an adult Red-eyed Dove, *Streptopelia semitorquata* (Rüppell). In the same region (1959) a 4 ft. specimen contained two Collared Doves, *Streptopelia capicola* (Sundevall).

NORTHERN RHODESIA. Mr. J. B. Shenton, Game Ranger, records that one of three pythons varying in size from 7 ft. to 12 ft., when caught regurgitated a fresh Guinea-fowl, *N. meleagris*.

Newby describes three cases of bird predation by pythons—in 1959, at Chingola, an 11 ft. specimen raided a fowl-run and consumed two laying fowls; and in 1960, near Kitwe, a 4 ft. specimen entered a fowl-run and swallowed a pullet, and a 10 ft. example swallowed two full-grown fowls.

Simpson records how a 2½ ft. python climbed a tree to seize a fledgling sparrow and immediately constricted it with 1½ coils. The bird was eaten on the branch.

(b) *Python regius* (Shaw), Royal Python.

SUDAN. Sweeney (1954) writes that a 3 ft. specimen caught at Kadugli, in the Nuba Mountains, Kordofan disgorged a Galago (or Bush Baby), *Galago senegalensis* E. Geoffroy, and an unidentified Ploceid.

(c) *Python reticulatus* (Schneid.), Reticulated or Malay Python; which is the world's greatest snake.

S.E. ASIA. M. W. F. Tweedie (26: p. 32) says it preys mainly on birds and mammals.

(d) *Python molurus* (L.), Indian Python.

S.E. ASIA. Wall (25: pp. 57–58) "a peacock in the coils of a python in Ceylon"; also, "eat a pheasant* (*Gennaeus lineata*)". He further records one killed swallowing a chicken; another swallowed three ducks; and in Assam in a fowl-run one made a meal of five ducks, four fowls and one pigeon.

---

* Lineated or Burmese Silver Pheasant.

(x) Others

Solid Toothed.

General. According to Albert and Anna Wright (²¹) who quote relevant references, the following common, harmless snakes of the United States and Canada have been known to prey on birds and sometimes their eggs:—

Vol. I.	p. 58	*Charina bottae utahensis* Van Denburgh, Great Basin Rubber Snake.
	p. 98	*Arizona elegans eburnata* Klauber, Desert Glossy Snake.
	p. 141	*Coluber constrictor flaviventris* (Say), Blue Racer.
	p. 202	*Drymarchon corais couperi* (Holbrook), Indigo Snake.
	pp. 221–269	Eight species of *Elaphe*, including Chicken Snakes.
	p. 300	*Heterodon nasicus nasicus* Baird and Girard, Hog-nosed snake.
	p. 309	*Heterodon platyrhinos platyrhinos* (Latreille), Hog-nosed Snake or Spreading Adder.
	pp. 351–394	Seven species of *Lampropeltis*, King Snakes.
	pp. 429–465	Eight species of *Masticophis*, including Whip Snakes.
Vol. II.	pp. 595–618	Six species of *Pituophis*, including Gopher Snakes.
	p. 651	*Salvadora grahamiae lineata* Schmidt, Texas Patch-nosed Snake.
	pp. 777–841	Three species of *Thamnophis*, Garter Snakes.

B. S. Wright writing from Canada lists as bird-eaters the following colubrids:—

Coluber constrictor constrictor (L.)	Black Snake or Racer.
Lampropeltis getulus getulus (L.)	Eastern King Snake.
Pituophis melanoleucus sayi (Schleg.)	Bull Snake.
Thamnophis sirtalis sirtalis (L.)	Garter Snake.

(a) *Xenopeltis unicolor* Reinw. in Boie, Sunbeam Snake, attaining a length of 4 ft.

INDO-PACIFIC REGION. According to Loveridge (¹⁰: p. 124), although this species is a burrower its prey includes "occasionally even a bird".

(b) *Natrix natrix* (L.), Grass Snake.

EUROPE: BRITAIN. Wenner photographed a grass snake just after swallowing a Meadow Pipit, *Anthus pratensis* (L.).

Mr. G. D. Lake, in *The Field* (¹¹: p. 494) "I have caught a (grass) snake with its head in a willow wren's nest swallowing the last of a brood of five . . . Like adders they can climb to nests in gorse and low bushes."

L. Styles, in *The Field* (¹²: p. 30), "Once caught a grass snake devouring a young chaffinch". The parents were attacking the snake.

In the *Sea Swallow* ([13]: pp. 22–23), Lieut. Comdr. T. Emanuel, R.N. describes how a grass snake raided a pied wagtail's nest and consumed the two newly hatched chicks it contained and then took possession of the nest, which also held two eggs, for about a day and a half. When the snake eventually departed one egg had been broken and the other had disappeared —presumably with the snake.

(c) *Thamnophis* sp. Cope, Garter Snake.

NORTH AMERICA: BRITISH COLUMBIA. W. Earl Godfrey, Curator of Ornithology, National Museum of Canada (Ottawa), in 1953, killed one of these snakes with a nearly-dead juvenal Vesper Sparrow, *Pooecetes gramineus* (Gmel.), capable of flight, in its mouth. The bird was held by the neck.

(d) *Elaphe taeniura* Cope, Marbled Cave Snake or Stripe-tailed Racer. Attains a length of 5 ft.

BORNEO. Lord Medway, at one time Technical Assistant, Sarawak Museum, says ([6]: p. 69) this harmless black and white snake (which is primarily a bat-eater) roams freely through the dark passages of the 'birds' nest' Swiftlet, *Collocalia* nesting caves and feeding on the fallen young.

Harrisson, referring to the 'Cave Racer', *E. taeniura* (*in litt.*) "at Niah Caves and elsewhere lives inside the caves and is known to me and all there to climb to the nests of *Collocalia* spp. and take the eggs. I also have a film . . . of one taking a swiftlet fallen to the cave floor in failing to fly out from its initial ex-nestling take-off in darkness. It breaks the eggs and digests quickly."

Loveridge too ([10]: pp. 128–9) describes it is an active climber which subsists mainly on bats. It is a constrictor.

(e) *Pituophis catenifer* (Blainv.), Bull Snake; up to 4½ ft. in length.

CANADA: ALBERTA. Mr. William Wishart, Game Biologist, Province of Alberta, suggests that this snake is one of three species—there are only seven species of snakes known in Alberta—which prey on the eggs and occasionally on the young of the ground-nesting species of birds that occur on the prairies.

The Wrights ([21]: p. 595) include "birds" in its food.

(f) *Philothamnus hoplogaster* (Günther), South-eastern Green Snake.

SOUTHERN RHODESIA. Turnbull-Kemp shot one of these snakes when raiding a nest, with an egg of the Cape Turtle Dove, *S. capicola* in its mouth.

(g) *Philothamnus semivariegatus* (A. Smith), Spotted Wood Snake or Bush Snake.

AFRICA: NYASALAND. Sweeney, at Chiromo (1958), found one of these snakes in an arboreal bird's nest, species not known.

(h) *Ptyas mucosus* (L.) Greater Rat Snake, which attains a length of 10 ft.
S.E. ASIA. According to Loveridge ([10]: p. 128) its skill in climbing enables it to capture birds.

Wall ([25]: p. 171) describes an attack on a nest of young birds and a fledgling being devoured.

This snake does not constrict, but presses down its prey with a loop of its coils.

(j) *Heterodon nasicus* Baird and Girard, Hog-nosed Snake; attains a length of 2 ft.
CANADA: ALBERTA. See Wishart, with reference to *Pituophis catenifer*.

The Wrights ([21]: p. 300) include "sparrows" in its food.

(k) *Dendrelaphis tristis* (Daud.), Seba's Bronze-back.
INDIA and CEYLON. Wall ([25]: pp. 221–222) records it raiding the nest and eggs of the Black-backed Robin, *Thamnobia fulicata* (L.).

(l) *Oligodon purpurascens* (Schleg.), Brown Kukri Snake.
MALAYA. According to Tweedie ([26]: p. 46), eats birds.

Back Fanged.

(a) *Telescopus dhara* (=*Tarbophis obtusus*) (Forskål), Blunt-nosed Cat Snake or Large-eyed Snake.
AFRICA: SUDAN. *Vide* ([14]: p. 7) "Two specimens of the Blunt-nosed Cat Snake (*Tarbophis obtusus* Reuss), the commonest snake in the houses and gardens of Khartoum, were found to contain partly-digested house sparrows."

(b) *Telescopus* (= *Tarbophis*) *semiannulatus* A. Smith, African Tiger Snake.
SOUTH AFRICA. Stevenson-Hamilton ([15]: p. 122) "the tiger snake (*Tarbophis semiannulatus*), which is often discovered living among a colony of weaver birds at nesting time, presumably preying mainly on their young."

(c) *Boiga blandingii* Hallowell, Blanding's Tree Snake.
WEST AFRICA: NIGERIA. Dr. S. F. Woodward (1960) found four birds in the stomach of one of these snakes.

(d) *Boiga dendrophila* (Boie), Mangrove Snake. Attains a length of 7 ft.
ASIA: BORNEO. According to Harrisson, this snake occurs on the Turtle Islands, one of which is five miles off shore. It is known to take baby turtles and might take the eggs and young of sea birds. Loveridge ([10]: p. 132) says birds are eaten. Mr. N. S. Haile, Hon. Curator of Reptiles, Sarawak Museum, has found hen's eggs in this *Boiga*.

(e) All the Asian Cat Snakes of the genus *Boiga* (formerly *Ddisapamorphus*) kill by constriction and are bird, nestling and egg-eaters. Wall refers to:—

([25]: p. 272) *Dipsadamorphus trigonatus* (Schneid.) from India and Transcaspia. A Robin, *Thamnobia cambayensis* (Lath.) was found in one specimen. "In captivity feeds freely on small birds."

([25]: p. 279) *D. ceylonensis* (Günth.), from S. India and Ceylon; "devours birds". One got into an aviary and ate a canary, and was probably responsible for previous loss of six other canaries and Java sparrows.

([25]: p. 287) *D. forsteni* (Dum. and Bibr.), from India and Ceylon; grows to 7 ft. "A voracious poultry eater"; "also robs pigeon houses, ascending by the one smooth supporting post". One was caught in the act of swallowing a fowl.

Also, see ([26]: p. 74).

(f) *Dryophis nasutus* (Lacép.), Long-nosed Whip Snake, attaining a length of 5 ft.

S.E. ASIA. Loveridge ([10]: p. 135), "Small birds are also eaten". Wall ([25]: p. 295) "Several records of birds being eaten"; and Tweedie ([26]: p. 79), *Dryophis*, Whip Snakes "feeding on small birds".

(g) *Psammophis sibilans* (L.) Hissing Sand Snake or Sun Snake.

AFRICA: NORTHERN RHODESIA. Newby (1960) records a 3½ ft. specimen which entered an aviary near Kitwe and seized and swallowed a tame canary. This snake was subsequently kept in captivity and fed on rodents. Also, "Occasionally *P. sibilans* will constrict (dead) birds after seizing should their relative size be larger than is perfectly comfortable".

(xi) General

ADEN. Capt. H. E. Ennion (1960) in *The Field* ([16]: p. 250) describes seeing an unidentified snake with three coils of its body round a Little Stint, *Calidris minuta* (Leisler), by a brackish pool near Zingibar, 30 miles N.E. of Aden. As he approached, the snake abandoned the freshly killed bird and disappeared into the long grass. The date, 30th July, 1960, is interesting, being rather early for this palearctic migrant.

Vide Newby *ante*, *P. sibilans* in certain circumstances is known to constrict birds, and the identity of Ennion's snake is probably *Psammophis sibilans schokari* (Forskål), a relatively large species attaining a length of 1480 mm. The other possibility is the back-fanged *Coelopeltis* (*Malpolon*) *moilensis* (Reuss) which is rather small (480 mm.) to tackle so relatively large a bird.

NOTE. Certain species of back-fanged African snakes, for instance *Dispholidus typus* and *Psammophis sibilans* appear definitely to associate a bird's nest as a source of food supply.

LIZARDS

(a) *Varanus exanthematicus* (= *albigularis*) (Bosc.), Savanna Monitor.

AFRICA: SUDAN. Sweeney (1952) captured a specimen in Kordofan which was eating a young francolin (probably *Francolinus clappertoni* Child).

SOUTH AFRICA. According to Stevenson-Hamilton ([15]: p. 113) this monitor is a forest dweller which is often found many miles from the nearest water. It is an expert climber and "an inveterate hunter of birds' eggs".

In *African Wild Life* (^{17}) there is a description of a Harrier Eagle, *Circaetus* in the last stages of exhaustion in the grip of a 2½ ft. bush leguan (*V. exanthematicus*). The lizard which was uninjured had evidently seized the bird (and not the bird the reptile) and had it on its back, with a deadly grip on the bird's leg.

Newby (*in litt.*) "more partial to bird prey than *V. niloticus*. Dead birds, up to the size of a half-grown fowl are taken with avidity. They are normally swallowed whole. Fowls' eggs are crushed and swallowed whenever given."

(b) *Varanus salvator* (Gray), Common Water Monitor.
PACIFIC REGION. This large lizard, which sometimes attains a total length of 8 ft., should more appropriately have been included with "Aquatic Predators". Loveridge (^{10}: pp. 61–63) records that in captivity it eats birds and eggs, the eggs being swallowed whole and gulped in rapid succession. In the stomach the eggs are crushed by muscular action and the shells dissolve in about a couple of days.

(c) *Varanus indicus* (Daud.), Australasian Monitor; and

(d) *Varanus dumerilii* (Gray), Duméril's Monitor.
INDO-PACIFIC REGION. According to Loveridge (^{10}: pp. 64–65), both these monitors prey on birds.

(e) *Agama cyanogaster* (Rüppell), Black-necked Arboreal Agama.
AFRICA: NORTHERN RHODESIA. Mr. Johann Gouws (1959), near Kitwe, saw one of these lizards more than a foot long catch an African Pied Wagtail, *Motacilla aguimp* Dumont in a small tree near the ground. Both fell and were watched struggling for about one minute when the observer rescued the bird, but it died a few minutes later. It would have been interesting to see whether the lizard was capable of swallowing so relatively large a bird.

Vide (^{24}: p. 23), in the Kruger National Park, with reference to *Agama atricollis* (now *Agama cyanogaster*), "A fight between one of these and a White-crowned Shrike, *Eurocephalus anguitimens* was seen to end undecided after a few furious rounds".

(f) *Calotes* sp., Variable Lizards: an Agamid.
PACIFIC REGION. Loveridge (^{10}: p. 83), "Has been known to devour nestling birds".

(g) *Gekko gecko* (L.), Tokay Gecko.
INDO-PACIFIC REGION. Loveridge (^{10}: p. 71), even small birds are said to be taken when opportunity offers.

(h) *Lacerta lepida* Daud., Ocellated Lizard.
EUROPE: S. SPAIN. According to Mountfort (^{2}) this lizard, which grows to a length of three feet on the Coto Doñana, preys frequently on Bee-eater, *Merops apiaster* L. colonies, taking both eggs and birds from

the nests, which locally are tunnelled in flat ground. Congreve, too, "assumed the large-sized lizards of S. Spain must be eating Bee-eaters because one found them in Bee-eater nest-holes".

(j) *Gerrhosaurus major grandis* Boulenger, Zululand Great Plated Lizard.
AFRICA: NYASALAND. Sweeney found that in captivity this large lizard fed readily on dead weaver birds and other small birds, which suggests that birds may be a normal item in the diet of this swift moving species.

(k) *Tiliqua nigrolutea* (Gray), Giant Skink or Blue-tongued Lizard.
AUSTRALIA: TASMANIA. Warham ([7]: p. 607) suggests that this relatively massive lizard probably preys on the chicks and eggs of the Little Penguin in the Cat Island Bird Sanctuary, in Bass Strait. Loveridge ([10]: p. 98) states that in the wild state young birds are included in its food.

(l) *Mabuya perrotetii* (Gray), Perrotet's Skink.
AFRICA: CAPE VERDE ISLANDS. According to Bannerman ([18]: p. 106), on Branca islet (one of the small Rombos islands) of the Cape Verde Archipelago, Alexander's Little Shearwater, *Puffinus baroli boydi* Mathews "The birds are troubled in their nest-holes by a species of skink which, in (Boyd) Alexander's view, had been responsible for driving the petrels away from Raza where they formerly bred".

COMMENT. The only large skink on these islands capable of creating such disturbance is *M. perrotetii*, and in view of the next two notes (m) and (n) one can reasonably suspect that this skink is an egg-eater. C.R.S.P.

(m) *Mabuya wrightii* Boulenger, Wright's Skink.
AFRICA: SEYCHELLES. *Vide* ([19]: p. 44 and 20: p. 582), this skink, which attains a length of 307 mm., is found, sometimes abundantly, on seven of the Seychelles group of islands where sea-fowl breed. It eats the eggs of the Sooty Tern, *Sterna fuscata* L. and the Noddy, *Anous stolidus* (L.), and if an egg is left unguarded the lizards at once get it. The eggs are broken by rolling them onto rocks or by biting the pointed end. This skink causes considerable damage to the bird population especially on those islands where it is abundant. It also eats nestlings not more than a few days old.

(n) *Mabuya sechellensis* (Dum. and Bibr.), Seychelles Skink.
AFRICA: SEYCHELLES. *Vide* ([19]: p. 44 and 20: p. 582), this skink, which is slightly smaller (242 mm.), is an egg-eater like *M. wrightii*. But it is seldom strong enough to bite an egg open. It occurs on six of the Seychelles Islands, on three of which *M. wrightii* is also found. Both these skinks are very abundant on Aride Island where they do considerable damage to the bird population.

M. sechellensis has been seen to climb a tree and successfully bite open the egg of the White Tern, *Gygis alba* (Sparrman), and twice it was watched rolling this Tern's single egg off a branch to be broken on the ground. It cannot tackle a chick more than a few days old.

NOTE. It is possible that other species of skinks—and also some other lizards—are addicted to egg-eating and this might help to explain some of the very high percentage of loss sustained by the eggs of many of the smaller species of African birds.

(o) *Chamaeleo melleri* (Gray), Giant One-horned Chameleon.
Sweeney, near Ngomeni (20 miles from Tanga), Tanganyika, found one of these chameleons eating a Fire Finch, *Lagonosticta senegala ruberrima* Reich.

TORTOISES

Testudo sp., Galapagos Giant Tortoise.
PACIFIC: GALAPAGOS ISLANDS. According to Loveridge ([10]: p. 37), some species of these giant tortoises, which need meat in their diet, will catch and eat birds if given the opportunity.

HOW A BIRD IS SWALLOWED

Several correspondents have described how certain African snakes, for instance *Python sebae*, *Dispholidus typus* and *Thelotornis kirtlandii*, stalk and seize living birds. They also mention how these snakes at first carefully examine dead birds which are offered them in captivity, before accepting them. Once caught, a bird is swallowed head first, tail first or sideways, according to how it has been seized. Tail first evidently presents no difficulty, but attempts to swallow prey sideways usually fail, and the victim has to be regurgitated, and is then swallowed head first.

Simpson observed that of six small birds consumed at various times by a 2½ ft. python, four were swallowed tail first, one head first, and the other stuck sideways, was regurgitated and then swallowed head first.

I am greatly indebted to all those who have so generously provided me with information based on their own experiences—and in particular to Mr. R. C. H. Sweeney for his numerous carefully compiled observations—or who have invited my attention to relevant references.

SUMMARY

There is ample confirmation that the African arboreal snakes *Dispholidus typus* and *Thelotornis kirtlandii* are habitual bird predators, though in the case of the latter its choice of diet may be affected by ecological conditions.

The large, back-fanged *Coelopeltis monspessulana*, in Spain, preys on small birds and nestlings.

A black mamba, *Dendroaspis polylepis* lived in a house roof to enable it to feed on the colonial swifts nesting in the eaves.

Cobras (*Naja* spp.), both Asian and African, are relentless raiders of the fowl-run in their quest for eggs. A Cape cobra, *Naja flava* devastated a nesting colony of sandgrouse.

The arboreal forest cobra, *Pseudohaje goldii* is a doubtful bird predator, for in captivity it feeds on batrachians.

On islands off Borneo the sea snake, *Laticauda colubrina* preys freely on terns' eggs.

The venomous Australian tiger snake, *Notechis scutatus* is suspect as a predator of the Little Penguin.

Many species of viper on occasion will prey on birds, mainly nestlings and juveniles; the British adder is a skilful climber and a nest raider.

Those vipers—and other snakes—which feed primarily on warm-blooded prey will presumably, when hungry, always seize the opportunity of catching birds. But *Bitis gabonica*, on the evidence seemingly a raider of the fowl-run, is more likely after rodents.

Some of the pit vipers of the genera *Ancistrodon*, *Trimeresurus* (*T. wagleri* is a climbing species), *Crotalus* (rattlesnakes) and *Sistrurus* (ground rattlesnakes) prey on birds.

African pythons of all sizes prey on ground birds and aquatic species to a far greater extent than is generally known; Asian pythons feed freely on birds; and *Python regius*, too, sometimes takes a bird.

In North America many harmless species of snakes are bird predators, some are egg-eaters.

Xenopeltis unicolor and *Chrysopelea ornata* of the Far East, the large Asian *Ptyas mucosus* (rat snake), *Dryophis nasutus*, *Dendrelaphis tristis*, *Oligodon purpurascens* and *Boiga dendrophila*—these last four also from Asia, all prey on birds, as do all Asian *Boiga*.

The British grass snake, *Natrix natrix* is a nest raider.

In Borneo, a harmless colubrid, *Elaphe taeniura* haunts a vast, dark cavern where the swiftlets *Collocalia* breed in myriads, to raid the nests and to feed on the fallen nestlings.

It is established that *Psammophis sibilans* is a bird-eater; and there is further confirmation that snakes of the genus *Telescopus* regularly prey on birds.

The African bush monitor, *Varanus exanthematicus* is probably more addicted to preying on birds and their eggs, than are other African and Asian species of *Varanus*.

There is a remarkable account of *Agama cyanogaster* preying on *Motacilla aguimp*, and also of a fight between one of these agamas and *Eurocephalus anguitimens*.

The giant *Chamaeleo melleri* is evidently an opportunist where waxbills are concerned.

Two species of skinks—*Mabuya wrightii* and *M. sechellensis*—cause havoc amongst terns' eggs on some of the Seychelles islands. The giant skink, *Tiliqua nigrolutea* of Australasia is another bird predator.

Other lizard, bird predators include the Asian *Gekko gecko*, *Calotes* sp. (an agamid), the European *Lacerta lepida* and the African *Gerrhosaurus major*.

Some species of the giant Galapagos tortoise which need meat in their diet are known to catch birds.

Various aspects of reptilian behaviour in relation to bird and egg predation are described.

[1]. Broadley, D. G. The Herpetology of Southern Rhodesia. Part I. Snakes. Bull. Mus. Comp. Zool. 120 (1), March 1959.

[2]. Mountfort, Guy. Portrait of a Wilderness. 1958.

[3]. Owen, Jennifer. Ibis 100 (4), Oct. 1958.

[4]. Uganda Protectorate. Annual Report of the Game and Fisheries Department. 1st July, 1957 to 30th June, 1958.

[5]. Laurent, R. Rev. Zool. Bot. Afr. LVIII, 1st—2nd October, 1958.
[6]. Smythies, Bertram E. The Birds of Borneo, 1960.
[7]. Warham, John. Ibis 100 (4), October, 1958.
[8]. Knight, Maxwell. The Field, 14th July, 1960.
[9]. Bannerman, David A. and W. Mary. Birds of Cyprus, 1958.
[10]. Loveridge, Arthur. Reptiles of the Pacific World, 1946.
[11]. Lake, G. D. The Field, 17th March, 1960.
[12]. Styles, L. The Field. 5th January, 1961.
[13]. "Sea Swallow", Annual Report of the Royal Naval Bird Watching Society, 12, 1959.
[14]. University of Khartoum, Natural History Museum. Annual Report, 1st July, 1956 to 30th June, 1958.
[15]. Stevenson-Hamilton, J. "The Low Veld", 1929.
[16]. Ennion, Capt. H. E. The Field, 11th August, 1960.
[17]. African Wild Life 1 (2), March, 1947.
[18]. Bannerman, David A. The Birds of the British Isles VIII, 1959.
[19]. Ridley, M. W. and Percy, Lord Richard. The Exploitation of Sea Birds in Seychelles. Colonial Research Studies No. 25. H.M.S.O., 1958.
[20]. Vesey-Fitzgerald, D. Ann. Mag. Nat. His. 11 (14), 1947.
[21]. Wright, Albert Hazen and Wright, Anna Allen. Handbook of Snakes of the United States and Canada. Cornell University. Vol. I, 1957 and Vol. II, 1957.
[22]. Uys, C. J. 'Bokmakierie', 12 (1), June, 1960.
[23]. 'Koedoe'. Journal for Scientific Research in the National Parks of the Union of South Africa, (1), 1958.
[24]. 'Koedoe'. *ibid*, (3) 1960.
[25]. Wall, Col. F. The Snakes of Ceylon, 1921.
[26]. Tweedie, M. W. F. The Snakes of Malaya, 1954.

Notes on some Ferruginous White-eye x Tufted Duck hybrids

by BRYAN L. SAGE

Received 21st August, 1961

As stated by Gray (1958) hybridization between the Ferruginous White-eye *Aythya nyroca* (Guldenstadt) and the Tufted Duck *Aythya fuligula* (Linnaeus) has occurred in both directions, and hybrids have frequently been reported both in the wild and in captivity.

I do not propose to list in detail all the published records of crosses between these species. However, it is of interest to note that at the Zoological Society of London this cross occurred on some seventeen occasions from 1848–1861, the hybrids continuing to breed either *inter se* or with one of the parents (see Sclater *Proc. Zool. Soc.* 1880: 524). According to various authorities the hybrids are fertile, and so are their progeny. De Selys-Longchamps (1856) gives details of the further cross: -

$$\frac{\text{Ferruginous White-eye x Tufted Duck}}{\text{Ferruginous White-eye}}$$

the progeny of which exhibited characters that were 75% Ferruginous White-eye and 25% Tufted Duck. H. Wormald, following a visit to Lord Grey's collection at Fallodon in 1925, remarked that there was quite a flock of these hybrids and that "apparently they all come alike whether bred as above (i.e. Ferruginous White-eye x Tufted Duck) or *inter se*." Recent examples of this cross occurred at the Wildfowl Trust at Slimbridge in 1952, and a male was seen in Regents Park, London, by Mr. D. I. M. Wallace in April 1961.

In spite of the numerous occasions on which these hybrids have been reported, detailed descriptions appear to be lacking. The present paper is based upon two specimens of this cross, a male and female as follows:—

(1) Ferruginous White-eye x Tufted Duck.

Sex of hybrid—male. Specimen in the British Museum (Natural History Reg. No. 71.3.20.3. This bird was bred at the Zoological Society of London and presented to the museum, it is presumably the specimen listed in the *B. M. Cat. Birds*. xxvii: 349.

Head and neck—dark reddish-chestnut, richest on the crown which is of normal White-eye shade; cheeks and remainder of the face and neck are browner and darker in shade than in the male White-eye, and there is less contrast between the neck and the colour of the back; the feathers of the nape are slightly loose and elongated; auricular area blackish with a metallic-green gloss; tiny white chin spot.

Upperparts—back and mantle blackish-brown with an olive gloss just discernible; mantle and scapulars with faint bay freckling; upper mantle contrasting slightly with lower mantle and back.

Wings—primaries dark brown with olive gloss on distal portions, inner webs shading to whitish; secondaries white with dark brown tips glossed with olive; innermost secondaries entirely blackish-brown, also glossed with olive-green; primary coverts similar; underwing white.

Underparts—breast rich reddish-chestnut, much darker and blacker than in male White-eye, with small darker blackish-brown tips to some feathers giving a faint and obscure spotted effect in places; very faint trace of blackish collar separating neck from breast; sides of lower breast and flanks paler cinnamon-brown, faintly freckled with whitish; vent and belly ashy-brown freckled and vermiculated with whitish-brown on the terminal parts of the feathers; under tail coverts white; remainder of underparts silky white.

In addition to this specimen there is a mounted and unregistered male example of the same parentage bred at the Zoological Society of London in 1858. The whole head and neck with the exception of the crown and forehead are blackish with a strong metallic-green gloss as in Baer's Pochard, the mottling on the flanks is less cinnamon, and the back and mantle are more uniform, otherwise the plumage is identical to that described above.

(2) Tufted Duck x Ferruginous White-eye.

Sex of hybrid—female. A wild-taken specimen shot at Nieuwkeep, Holland, on 8th September, 1905, now in the Leyden Museum. Reg. No. 255.

This bird was recorded by Van Oort (1908) and the parentage given above is taken from this paper, from the morphology of the bird it seems probable that the male parent was in fact the Tufted Duck.

Upperparts—generally of the appearance of a female Tufted Duck, but there is no contrast between the mantle and back as in that species, and the vermiculation of the feathers is nearly absent; nuchal crest present; white patch on each side of the base of the bill, this also extends across the forehead above the culmen; slight olive gloss on the primaries and secondaries.

Underparts—chin white; throat and neck dark brown; feathers of the remainder of the underparts pale brown with small or broader buff or white edges and tips.

Soft parts—iris yellow; bill grey-black; feet yellowish-grey, webs black.

Measurements

TABLE 1

Measurements in Millimetres of Hybrids and Parental Species

	Hybrids			*Ferruginous White-eye*		*Tufted Duck*	
	♂	♂	♀	♂	♀	♂	♀
Wing	178	—	195	178–193	172–185	198–208	189–202
Culmen from feathering	40	47 (from skull)	38	40–43	36–40	38–42	38–41
Width of bill at nostrils	20.5	22	20	20–21	19.5–21	22–24	20.5–21
Depth of bill at nostrils	17.5	18	19	15–18	16–17	18	18.5–19
Maximum width	24	23	24	22–23	22.5–23	25–25.5	23–24.5

It can be seen from the above table that the male hybrid is a small bird with the wing and culmen measurements at the minimum for the male Ferruginous White-eye. The width of the bill at the posterior border of the nostrils is much the same as in the male White-eye, but it is a little more spatulate as indicated by the greater maximum width which approaches that of the female Tufted Duck. The depth of the bill is also closer to the Tufted Duck and considerably less than that of the male White-eye.

In the case of the female hybrid the wing measurement is well within the range of that for the female Tufted Duck; the culmen measurement is within the range of the female of both the parental species. It may be noted that, as in the male hybrid, the maximum width and depth of the bill at the posterior border of the nostrils is in excess of that of the White-eye and agrees with the Tufted Duck.

DISCUSSION

Interspecific hybrids in the Anatidae frequently exhibit characters that are not referable to either of the parental species, and which may have a phylogenetical significance. Harrison (1953) has suggested the term "heterophoric reverse mutation" to cover such cases. The recombination of genes at the species level has produced in the male hybrid under discussion just such a character, namely the blackish coloration glossed with metallic-green, which is noticeable on the head, particularly in the auricular region. I have compared this hybrid with specimens of Baer's Pochard *Aythya baeri* (Radde), and the colour of the auricular region of the head is absolutely identical in both species. Baer's Pochard is the only species in the White-eyed Pochard group to have the head so coloured. The colour and pattern of the vent of the hybrid is also identical to that found in Baer's Pochard. A character common to the Tufted Duck, Baer's Pochard and the Ferruginous White-eye is the white spot on the chin, in the male hybrid this is present but considerably reduced in size. Among the characters found in this hybrid are some that are plainly referable to one or other of the parental species, as is to be expected. The occipital crest of the Tufted Duck is present, and the olive gloss of the primaries, secondaries, and wing coverts of the White-eye is equally evident in this individual.

The female hybrid also exhibits some interesting characters, namely the colour and pattern of the underparts and the white at the base of the bill. The former character agrees closely with that described and illustrated for the Tufted Duck by the Drs. Harrison (1960 a & b and 1961), the left hand bird in their first plate and the upper plate in the 1961 paper being the closest match; this subject is also commented upon by Gillham (1960). It is of particular interest to note that the examples of mottled underparts so far recorded by the Drs. Harrison have all been of first winter females. The Dutch bird, however, appears to be an adult female in winter plumage and there are no traces of moult in evidence. Whether or not the condition is of more frequent expression in first winter than in adult plumage remains to be seen, further research will no doubt elucidate this matter. The second character, that of the white at the base of the bill, and also on the chin, has been the subject of discussion before, i.e. Harrison (1954) and Sage (1955), where its possible importance as a reversionary character towards the Scaup *Aythya marila* (L.) is stressed.

It is desirable to consider the above characters further in view of their probable evolutionary importance. In their discussion of the significance of the mottled underside pattern of the Tufted Duck Harrison & Harrison (*op cit*) touch upon the fact that this character may represent a phylogenetic link towards some of the dark-bellied species that are included in the Tribe Aythyini, such as the Red-crested Pochard *Netta rufina* (Pallas), the South American and African Pochards *Netta erythrophthalma*, and the Rosy-billed Pochard *Netta peposaca* (Vieillot). However, in the present paper I wish to draw attention to the possible significance of this character as illustrating close relationship with a North American species of the genus, the Ring-necked Duck *Aythya collaris* (Donovan). Plate 3 of this paper should be compared with the upper part of plate 2 in Mendall (1958). It will be seen that not only does the female Ring-necked Duck possess a plumage phase in which the underparts resemble those of the female Tufted Duck x Ferruginous White-eye hybrid, but that a white chin spot and some white around the base of the bill are also a normal character in this species. The fact that the Tufted Duck and the Ring-necked Duck are closely related has long been recognised, Mendall on page 2 of his valuable monograph writes "The duck most closely related to the ring-neck, however, appears to be the tufted duck, *Aythya fuligula*, an Old World species".

The question of the significance of white at the base of the bill and white under-tail coverts in the Tufted Duck has, as already mentioned, been the subject of previous papers. In addition to those already quoted Gillham (1957) has dealt at some length with the matter and apparently tends to the opinion that they are normal plumage phases. However, whilst admitting that more evidence is required to clinch the matter, I

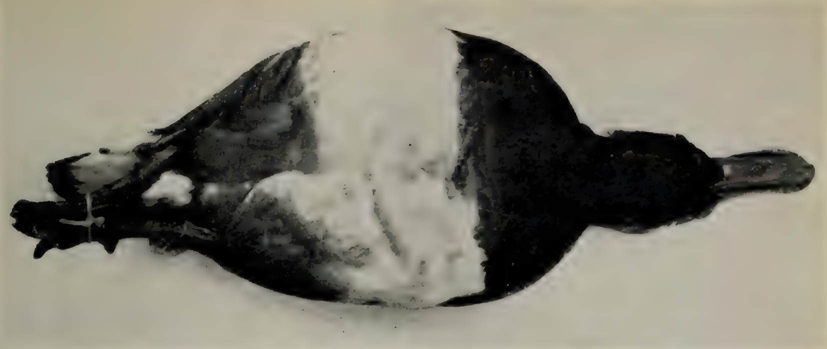


Plate 1. Ferruginous White-eye x Tufted Duck, underside of male.

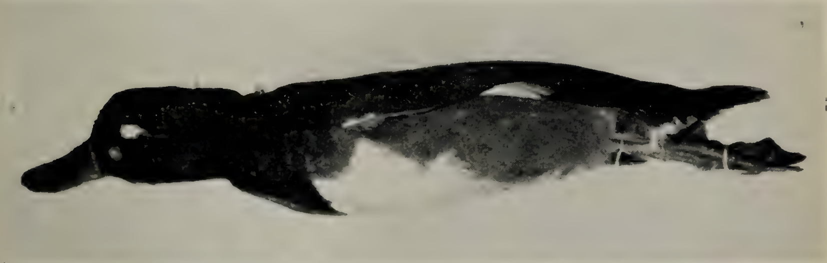


Plate 2. Ferruginous White-eye x Tufted Duck, side view of male.

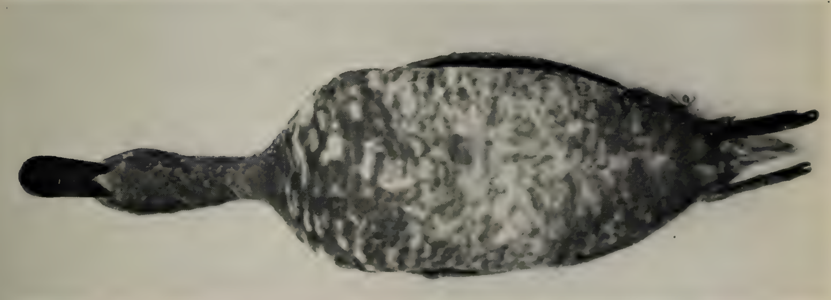


Plate 3. Tufted Duck x Ferruginous White-eye, underside of adult female.

concur with the Drs. Harrison in considering these characters, as found in the Tufted Duck, to be of evolutionary significance. The same remark applies to their occurrence in hybrids where they obviously appear as a result of polygenic action. It would greatly help in confirming this theory if either or both of these characters were found to occur occasionally in some other *Aythya* species where they are not normally found, such as white under-tail coverts in *A. affinis*, *A. collaris*, or *A. marila*; or white at the base of the bill in *A. nyroca*, *A. baeri* or *A. australis*. In this connection it is not without interest that a juvenile male of the cross Tufted Duck x Pochard has a considerable amount of white at the base of the bill (see Sage 1961), one also recalls the fact that the females of both races of *Netta erythrophthalma* have some white at the base of the bill and on the sides of the face.

The pattern of evolution in the Aythyini is still far from clear, and there are a number of problems awaiting final solution. There is, for instance, the curious geographical distribution of the two races of *Netta erythrophthalma*, the typical race in northern South America and *N.e.brunnea* in East and South Africa. How has this come about? These two races are apparently very closely related to the Rosy-billed Pochard also a South American species, but at the same time they appear also to have affinities with the Red-crested Pochard, a species with a wide Palaearctic distribution. As has been shown earlier in this paper the Tufted Duck sometimes exhibits characters that suggest genetical affinity with the Ring-necked Duck which is a North American species, and possibly also with the dark-bellied species of *Netta*. It will be of extreme interest if it can ever be established where Baer's Pochard fits into the pattern of evolution; it may well prove to be an archaic form and as equally important phylogenetically as the Baikal Teal *Anas formosa* Georgi is considered to be relative to the genus *Anas*. (see Sage 1960 and references quoted therein).

Acknowledgements

I am indebted to Mr. J. D. Macdonald of the British Museum (Natural History) for allowing me access to material in his care, and for kindly arranging the loan of specimens. The female hybrid was lent by Dr. G. C. A. Junge of the Rijksmuseum V. Natuurlijke Historie, Leiden, to whom I am very grateful. Dr. James M. Harrison has again lent me comparative material from his collection.

References:—

Gillham, E. H. (1957) Field-Notes on white feathering at the base of the bill and white under-tail coverts in the Tufted Duck. *Brit. Birds*. 50: 389–393.

Gillham, E. H. (1960) Remarks on the female plumages of the Tufted Duck and a comparison with the Ring-necked Duck. *Bull. Brit. Orn. Club* 80: 140–141.

Gray, Annie P. (1958) *Bird Hybrids*.

Harrison, Dr. James M. (1953) On the Significance of Variations of Pattern in Birds. *Bull. Brit. Orn. Club* 73: 37–40.

Harrison, Dr. Jeffery G. (1954) On an Unusual Tufted Duck and Smew. *ibid* 74: 53–54.

Harrison, Dr. James M. & Dr. Jeffery G. (1906a) On varieties of the Tufted Duck, with an account of an unrecorded type of variation. *ibid* 80: 25–28.

Harrison, Dr. James M. & Dr. Jeffery G. (1960b) Further remarks on Female Plumages of the Tufted Duck. *ibid* 80: 141–142.

Harrison, Dr. James M. & Dr. Jeffery G. (1961) Variant winter plumage of the female Tufted Duck. *Bull. Brit. Orn. Club* 81: 103–105.

Mendall, Howard L. (1958) The Ring-necked Duck in the Northeast. *Univ. Maine Bull.* No. 16.

Sage, Bryan L. (1955) Comments on the Relationship of some Ducks in the Genus *Aythya* Boie. *Bull. Brit. Orn. Club* 75: 53–54.

Sage, Bryan L. (1960) Notes on some Pintail x Teal Hybrids. *ibid* 80: 80–86.

Sage, Bryan L. (1961) A note on the immature plumage of Tufted Duck x Pochard hybrids. *Brit. Birds* 54: 399–402.

Selys-Longchamps, E. De. (1856) Additions à la récapitulation des hybrides observés dans la famille des Anatidées. *Bull. Acad. Brux*. 23 (2): 6–23.

van Oort, E. D. (1908) Contribution to our knowledge of the avifauna of the Netherlands, being a list of all the species of birds hitherto observed, with special references to specimens in the Leyden Museum. *Notes Leyden Mus*. 30: 129–314.

- 7 MAR 1962

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 4*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 4*s*., payable to the Hon. Treasurer, C. N. Walter, Finsbury Pavement House, 120 Moorgate, London, E.C.2.

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Miss E. Forster, The Double House, Wiveton, Holt, Norfolk.

DINNERS AND MEETINGS FOR 1962

20th March, 17th April, 15th May, 18th September, 16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

-2 APR 1962
PURCHASED

BRITISH MUSEUM
NATURAL HISTORY

Edited by
JOHN J. YEALLAND

Volume 82
No. 4

April
1962

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

- 2 APR 1962
PURCHASED

Volume 82
Number 4
Published: 30th March, 1962

The five hundred and ninety-seventh meeting of the Club was held at the Rembrandt Hotel, London, on Tuesday, 20th March, 1962.

Chairman: CAPTAIN C. R. S. PITMAN

Members present: 39; Guests 17; Total 56.

The Chairman welcomed Dr. Jean Dorst, Mr. and Mrs. D. S. McChesney and Mr. Melvin A. Traylor.

Exhibition of a hybrid duck

Dr. J. M. Harrison exhibited and briefly commented upon a Wigeon x European Green-winged Teal shot at Hayling Island during December 1961. A paper on this specimen is to be published in the *Bulletin*.

An ornithologist in Australia

Mr. John Warham recently returned from Australia where, with his wife, he has spent nine years, travelling to many parts. He addressed the meeting on some of his bird observations, the talk being illustrated with many superb coloured photographs.

A new race of *Myioparus plumbeus* (Hartlaub)

by P. A. CLANCEY

Received 1st July, 1961

Geographical variation in the aberrant flycatcher species *Myioparus plumbeus* (Hartlaub), 1858: Casamance River, Senegal, affects the coloration of the under-parts and under tail-coverts, the amount of white on the outermost rectrices and the physical proportions. At the present time two races are recognised by specialists, namely, *M. p. plumbeus* and *M. p. orientalis* (Reichenow and Neumann), 1895: Kibwezi, south-eastern Kenya Colony, mainly on the basis of variations in the ventral coloration, the former race having Light Pinkish Cinnamon (*vide* Ridgway (1912)), the latter off-white, under tail-coverts. In the populations currently embraced within the taxon *M. p. orientalis* it has recently been ascertained that there is quite considerable size variation, the eastern humid coastal birds being markedly smaller-sized than those occurring on the plateaux of the interior, from central Angola, the southern Congo (Katanga), Uganda and north-western Tanganyika Territory, southwards in the interior to the Bechuanaland Protectorate, most of Southern Rhodesia and the western Transvaal. The variation in size is of such a nature as to justify the division of the present race *M. p. orientalis* into two taxa, one of which will require to be given a name.

Topotypical material of *M. p. orientalis* from south-eastern Kenya Colony seems to be limited in museum collections, and I have only been able to examine one specimen: a ♀ from Teita with a wing of 61 and tail of 55 mm. Sclater, in Jackson (1938), gives the wing of the Kenya ♂ as 65 mm. In these small proportions Kenya topotypes agree with other material from the eastern parts of the species' range at my disposal, and I have determined *M. p. orientalis* as ranging from eastern Kenya Colony and eastern Tanganyika, southwards in the tropical coastal lowlands of eastern Africa to the eastern Transvaal, eastern Swaziland and Natal and Zululand. To the west of the range of *M. p. orientalis* occur subspecifically discrete population which may be known as

Myioparus plumbeus grandior, subsp. nov.

Description: Similar to *M. p. orientalis* but differs in averaging slightly paler and more powdery neutral grey on the upper-parts, and somewhat deeper and clearer grey over the breast and flanks, and with rather broader white edges to the outer webs of the tertials. Significantly larger in size, thus: wings of 12 ♂♂ from Northern Rhodesia, South-West Africa and northern Bechuanaland 70–73.5, tails 63–69, 12 ♀♀ wings 65–69.5, tails 58–63 mm., as against 12 ♂♂ of *M. p. orientalis* with wings 63.5–68, tails 57–62, 5 ♀♀ wings 61–65, tails 55–58 mm. (Kenya Colony, Tanganyika Territory, P.E.A., and Southern Rhodesian specimens).

Material examined: M. p. plumbeus, 2; *M. p. orientalis*, 35; *M. p. grandior*, 50.

Distribution: Occurs south and east of the range of nominate *M. plumbeus* in Uganda (Mubende), the Lake district of northern Tanganyika Territory and immediately adjacent Kenya Colony, south and south-westwards to Nyasaland, Northern Rhodesia, the southern Congo (Katanga), southern and south-eastern Angola, northern and north-eastern South-West Africa, northern and eastern Bechuanaland Protectorate, the western and northern Transvaal and most of southern Rhodesia (in the south *M. p. orientalis* ranges west to Nuanetsi, and a single specimen from the Matopos (25th May) is likewise referable to it). Intergrades to the east of its range with *M. p. orientalis*, as shown by a series from eastern Southern Rhodesia.

Type: ♂, adult. Mashi I, Barotseland, south-western Northern Rhodesia. 24th July, 1952. Collector's name not given. In the collection of the National Museum of Southern Rhodesia, Bulawayo. N. M. Reg. No. 13317.

Measurements of the Type: Wing (flattened) 71.5 (slightly worn), culmen from base 15.5, tarsus 19, tail 66 mm.

Remarks: I am extremely grateful to Mr. M. P. Stuart Irwin and Mr. J. G. Williams for kindly lending me the series of this small flycatcher from the collections of the National Museum of Southern Rhodesia, Bulawayo, and the Coryndon Museum, Nairobi. For the benefit of workers I detail hereunder the mensural data of the samples studied of the various groups of populations now placed in the taxa *M. p. orientalis* and *M. p. grandior:*

Myioparus plumbeus orientalis (Reichenow and Neumann)

Populations		*Males*			*Females*	
	No	*Wings*	*Tails*	*No*	*Wings*	*Tails*
S. E. Kenya Colony	—	—	—	1	61	55 mm.
E. Tanganyika	2	63.5.65	58.61	—	—	— mm.
Portuguese East Africa	4	63.5–66 (64.6)	57–62 (59.5)	—	—	— mm.
E. Southern Rhodesia	6	65–68 (66.3)	58–62 (60.3)	4	61–65 (62.9)	56–58 mm. (57.0)
E. Transvaal, E. Swaziland, N. Zululand	10	63–67.5 (65.9)	57.5–60.5 (59.4)	6	60.5–64.5 (62.1)	55.5–57.5 mm. (56.6)

Wings of 22 ♂♂ 63–68, tails 57.5–62 mm.
Wings of 11 ♀♀ 60.5–65, tails 55–58 mm.

Myioparus plumbeus grandior Clancey

Populations		*Males*			*Females*	
	No	*Wings*	*Tails*	*No*	*Wings*	*Tails*
Uganda, W. Tanganyika	4	70 (70)	63–64 (63.4)	1	67	59 mm.
N. Rhodesia, S.W. Africa, N. Bechuanaland	12	70–73.5 (71.8)	63.5–69 (66.2)	12	65–69.5 (67.3)	58–63 mm. (61.0)
W. Southern Rhodesia	4	70–71 (70.5)	63–65 (64.0)	7	65.5–69 (67.4)	59.5–63 (61.6)

Wings of 20 ♂♂ 70–73.5, tails 63–69 mm.
Wings of 20 ♀♀ 65–69.5, tails 58–63 mm.

The generic placing of Hartlaub's *Stenostira plumbea* has recently figured quite prominently in the periodic literature. On the basis of the findings by Vaurie (1957) and Clancey (1957), the species is now placed in the Muscicapidae in the genus *Myioparus* Roberts, 1922, and divorced from the forms *Parisoma subcaeruleum* (Vieillot) and *Parisoma layardi* Hartlaub, now believed to be aberrant warblers and not flycatchers, with which it has generally been associated.

References:—
Clancey, P. A. *Ibis*, vol. 99, 3, 1957, pp. 512, 513.
Ridgway, R. "Color Standards and Color Nomenclature." Washington. 1912.
Sclater, W. L. in Jackson, "The Birds of Kenya Colony and the Uganda Protectorate", vol. ii, 1938, p. 908.
Vaurie, C. *Ibis*, vol. 99, 1, 1957, pp. 120–122.

Waterfowl predation in Canada by the Northern Pike (or Jackfish) *Esox lucius* L.

by CHARLES R. S. PITMAN

Received 5th July 1961

The pike is a well-known predator of juvenile waterfowl in Europe, and in Canada the same species is so plentiful in those waters which are ideally suited to waterfowl breeding—where the depth is about three feet and the aquatic vegetation abundant—that[1] "It is evident that millions of ducklings (and muskrats) are lost every season to jackfish". This means that the *annual duckling loss* in the delta regions of northern Canada far exceeds the greatest total of ducks that is ever at any one time in the British Isles. The greatest destruction occurs in the shallows where 2 lbs. to 4 lbs. pike, which are the worst offenders, are most plentiful, though 1 lb. pike, too, readily take ducklings, as also will pike up to 10 lbs. Entire broods are wiped out by the pike. The larger fish (up to 10 lbs.) frequent deeper water and to some extent prey on the diving species. Particularly widespread and wholesale destruction occurs during June and early July shortly after spawning which coincides with duckling hatching time (and the first crop of young muskrats). Pike have often been watched pursuing ducklings and catching them on the surface when trying to escape; they are swallowed tail first. The majority of young waterfowl taken are less than one week old, probably because these spend most time in the shallows where pike abound. Also, small waterfowl cannot move as rapidly, nor for as great a distance when pursued, as the larger ones. The very young of all species tend to dive when pursued while the older ones flee on the surface from a pursuer.

The pike from an early age is dangerous to ducklings and it grows rapidly, at the rate of about 1 lb. per annum. It takes a pike at least three days, or a good deal longer, to digest a duckling (or muskrat), after which it will feed again. A 1 lb. duckling has been found in a 2½ lbs. pike; a 7 lbs. pike contained three ducklings and another two well-grown ducklings; an 8½ lbs. pike had eaten a 10 ozs. Blue-bill; another contained a full grown coot and one died trying to swallow a Horned Grebe. Seven goslings were seen to be taken in succession by large pike. Twelve pike, averaging 3–8 lbs., contained a total of ten ducklings and three muskrats. In a batch of 23 pike examined, 15 contained food and of these four had taken birds—three each a young coot, the other a Lesser Scaup. According to Mr. Dudley R. Foskett of Edmonton, Alberta "In 1958 I took a pike while angling in Pudge Lake, Riding Mountain National Park, which had four ducklings in its stomach". These are but a few examples of pike predation.

In the Prairie Provinces of Canada in the past 40 years the tremendous increase in the acreage of cereal crops has resulted in a great contraction of the water areas in which the ducks once bred. From 1900 to 1940 there was an elevenfold increase in crop area—from 3½ million to 40 million acres. This reduction of the available nesting area on the prairies has focussed attention on the alarming extent of duckling predation by pike in the important duck breeding grounds in the Saskatchewan and Athabasca delta regions. Observations made 35 years ago indicated the seriousness of this pike predation. In 1939, 1940 and 1941 a series of investigations, supplemented by the reports of a host of expert observers, were carried out in these deltas during the 60 to 80 days' period in which ducklings are available to pike. Determinations were made of the age, sex, length, weight and stomach contents of the pike; captive pike were examined at intervals after having been fed on chicks, ducklings, young grebes, pieces of muskrat, etc., to determine the rates of digestion of different types of food; and intensive fishing was carried out to obtain data concerning the total pike population. A study was made of waterfowl brood sizes, nesting habits, times of broods reaching the water and susceptibility to destruction by pike.

It has been estimated that for each of the six years 1936–1941 (inclusive) the annual average duck population, of all ages, in the 900,000 water and marsh acreage of the Saskatchewan and Athabasca deltas, amounted to about 14½ millions. In these regions destruction of young waterfowl by pike probably totalled 1½ million per annum or 9.7 per cent; but this loss is only about 3.2 per cent of the total duck population of the Prairie Provinces at breeding time. These figures are of staggering proportions.

Predation by pike may destroy one young waterfowl per 0.5 acre—it can be as much as 1.7 per acre—per season. Pike between 19 and 30 inches (1½ to 6 lbs.) are responsible for 71.5 per cent of all predation, although during two seasons' (1940–41) investigations, when 3,000 pike were caught, this size range was represented by only 23.3 per cent (620 out of 2,658) of all the pike examined which were large enough (over 14 inches) to prey on waterfowl. As a rule, female pike contained three times the weight of food found in males, although averaging but 1¼ inches longer. Female pike constituted 47.8 per cent of the population, though responsible for 56 per cent of the predation. Diving ducklings are taken three times as often as surface-feeders, probably because of the greater proportion of time spent by divers underwater, and their consequent greater accessibility to pike. The highest estimated duck population, in a lake of eight square miles, was 3,350 per square mile or 5.2 ducks per acre—a figure 50 per cent higher than in any other area investigated. In another area of eight square miles of water and marsh it was estimated there were some 20,000 pike and 18,742 ducks: yet another of two square miles held 10,000 pike and 4,300 ducks. Four sample counts in a water area of 60,800 acres suggested a total duckling loss, from pike predation, of 182,000 or three per acre, The average loss in three areas studied was reckoned to be 34.1 per cent of the hatch, but the total loss in a selected area where the loss was most severe was as high as 57 per cent.

In Northern Alberta several months' study in one area indicated a 40 per cent loss of the total duckling hatch; there is evidence of similar losses in the Athabasca delta in the same Province.

In two lakes of similar extent, the brood count of the one which was badly infested with pike was only 2.7, but in the other which was free from this predator it was 8.9. The best time for making these counts is the eventide.

The abundance of other food of the pike—either animal or plant—appears to have no bearing on the predation of the pike on ducklings.

Often it was not possible to determine the pike population accurately, but it is at least as great, and sometimes many times as great, as the duck population on all the lakes studied.

Depredations can be very variable, for 0.42 per cent of pike examined in one large lake contained ducklings, yet in another 7.5 per cent of those caught had eaten ducklings, and in another the proportion was three per cent.

Pike abundance is well illustrated by a catch of 445 small pike taken in a one hundred yards long 2½ inch mesh gill-net which was set for eight hours. In a water area of 18 acres the population density of pike capable of preying on young waterfowl was 27 per acre.

Investigations over a period of 26 days showed 68 broods of ducklings totalling 457, an average of 6.7; on another lake in 35 days 80 broods were counted totalling 447, an average of 5.56. Other counts record 43 broods totalling 225—an average of 5.2, and 121 broods averaging 5.8. In pike infested waters the average of 32 broods of dabbling ducks was 5.5, and of 32 broods of diving ducks (Canvas-back and Lesser Scaup) 5.4. While in waters not infested with pike (though it was possible that the broods might have access to infested waters) 24 broods of dabblers averaged 5.9, and nine broods of divers (Canvas-back and Lesser Scaup), 9.0.

Pike not infrequently contain more than one young waterfowl; the most recorded seems to be four.

In an investigation in 1940 in the Athabasca delta, 1,758 pike were examined; 13 or 0.74 per cent contained young ducks, nine or 0.51 per cent young coots, and two or 0.16 per cent young muskrats. Of this predation 77 per cent was by pike of 22 to 27 inches and weighing 2¼ to 4 lbs. Again, of 2,658 pike large enough to prey on young waterfowl, 29 or 1.08 per cent had eaten ducklings, and five or 0.20 per cent young coots and grebes. Of these 34 pike, 29 each contained one young waterfowl, three contained two, one had three and the other four waterfowl. A juvenile Yellow-headed Blackbird, *Xanthocephalus xanthocephalus* (Bonaparte) was found in one pike stomach.

The five species of ducklings taken most frequently, *i.e.* 70 to 75 per cent:— Mallard, *Anas platyrhynchos* L., Lesser Scaup or Bluebill, *Aythya affinis* (Eyton), Canvas-back, *Aythya valisineria* (Wils.), Pintail, *Anas acuta* L., Blue-winged Teal, *Anas discors* L.

Five species taken less frequently, *i.e.* 28 per cent:— Redhead or Pochard, *Aythya americana* (Eyt.), Ruddy Duck, *Erismatura jamaicensis* (Gmel.), American Golden-eye or Whistler, *Bucephala clangula americana* (Bonap.), White-winged Scoter, *Melanitta fusca deglandi* (Bonap.), Shoveler or Spoon-bill, *Anas clypeata* L.

Very few taken, four species:— Baldpate or American Wigeon, *Anas americana* Gmel., Buffle-head or Spirit Duck, *Bucephala albeola* (L.), Gadwall or Grey Duck, *Anas strepera* L., Green-winged Teal, *Anas crecca carolinensis* Gmel.

Rarely taken, three species:— Black Duck, *Anas rubripes* Brewster, Wood Duck, *Aix sponsa* (L.), Ring-necked Duck, *Aythya collaris* (Donov.).

Also taken, three species of Grebe:— Red-necked or Holboell's Grebe, *Colymbus grisegena holbollii* (Reinh.), Horned Grebe, *Colymbus auritus* L., Pied-billed Grebe, Dabchick or Hell Diver, *Podilymbus podiceps podiceps* (L.) and American Coot or Mud-Hen, *Fulica americana americana* Gmel.

According to information received *in litt.* some 20 species of dabbling and diving ducks commonly nest in Alberta and the Northern Pike, *Esox lucius* and Arctic Char, *Salvelinus alpinus malma* (Walbaum) prey occasionally on ducklings. Pike occur sporadically in the warmer waters of the prairies and parklands where most of these ducks nest. The Golden-eyes, *Bucephala* spp., the Mergansers, *Mergus* spp. and the Harlequin Duck, *Histrionicus histrionicus* (L.) breed in the range of the Arctic Char, i.e., the cooler waters of the foot-hills, mountains and north.

The latest information received from Ducks Unlimited (Canada) indicates that "little research work has been done on pike predation on waterfowl in recent years", and though this wastage continues "the overall losses are small in comparison to losses suffered from raccoon and skunks".

I am most grateful to those Canadian correspondents—particularly Mr. W. Earl Godfrey, Mr. Leslie M. Tuck, and Mr. Bruce S. Wright—who have so kindly assisted me with information and references, as well as to Dr. V. E. F. Solman and Ducks Unlimited (Canada) for the loan of literature.

References:

[1] 1940 Bajkov, A. D. and Shortt, A. M. Northern Pike as Predator on Waterfowl and Muskrat. Pub. by Ducks Unlimited (Canada).

1940 Ross, D. A. Jackfish Investigation, 1940. Athabaska Delta, Alberta. Pub. by Ducks Unlimited (Canada).

1940 Solman, V. E. F. Jackfish Report, 1940. Pike Study, 1940. Lower Saskatchewan Delta, Manitoba. Pub. by Ducks Unlimited (Canada).

1945 Solman, Victor E. F. "The Ecological Relations of Pike, *Esox lucius* L. and Waterfowl". Ecology, Vol. 26, No. 2, pp. 157–170, April, 1945.

1954 Wright, Bruce S. High Tide and East Wind, pp. 51–53.

Notes on the African Lily-trotter *Actophilornis africanus* (Gmelin)

by G. R. CUNNINGHAM-VAN SOMEREN AND C. ROBINSON

For several years African Lily-trotters, *Actophilornis africanus* (Gmelin) have frequented an eight-acre dam at Karen, near Nairobi, Kenya, at an altitude of 6,000 ft. The birds were first recorded when blue water-lily (*Nymphea capensis*) invaded the dam and provided a suitable habitat. Later, when a planted bed of an exotic water-lily spread, this formed the breeding focus for the birds as the pads were generally denser and formed a more secure base for the flimsy nests. Incidentally, the leaves of the yellow lily have a purple-brown under-surface and these with the yellow flowers form a striking similarity of colour to the plumage of the Lily-trotter. Certainly cryptic, and the sitting bird was extremely difficult to spot even with the aid of field glasses.

Several pairs of Lily-trotters have nested during the last few years, but previously we failed to see chicks. This season, June/July, 1961, a pair nested among the yellow lilies and from a permanent floating "hide" many hours of observations were made and the hatching of an egg and the brooding of chicks was witnessed with, finally, the chick-carrying by the parent birds. Many photographs, ciné and still, in both black-and-white and colour, were secured by us.

The notes confirm, to some extent, and add to those of Pitman (*Bull. Brit. Orn. Cl.* 80 (6), 1960: 103–105 and Simpson (op. cit. 81 (5): 82–85).

The area of lily-pads at Karen has supported one pair (and on occasions two pairs) of Lily-trotters over the last five years, but this year, 1961, only one pair has been in residence and this may have been due to the presence of a sub-adult believed to be the 1960 offspring of the pair under observation in 1961. When two pairs are in residence there is some evidence of territory sharing, both pairs using the whole area, but when breeding commences there is a marked change in the disposition of the birds. The breeding pairs showed antagonism to any intruder into the nest area, either of its own kind or another species. This reaction was more pronounced in the female, which will even leave its nest to drive off an intruder. Observations over several years suggest that the male normally fed somewhere close to the sitting female, but in 1961 the male seldom visited the nest area nor took part in attacks on intruders. Other males have been known to assist the female in repulsing intruders. Attacks are usually vicious and sustained, particularly if the intruder resists attack. This was particularly the case when the female, in 1961, drove off Coot (*Fulica cristata* Gmelin), Moorhen (*Gallinula chloropus meridionalis* Brehm), Black Crake (*Limnocorax flavirostris* Swainson) and the White-rump Diving Duck (*Thalassornis leuconotus* Eyton). All these species were breeding in a clump of papyrus within fifty yards of the Lily-trotter, which took particular exception to Moorhen coming into the yellow water-lily area, and the bird was seen to plunge into long grass in pursuit. Recently an attack on a Squacco Heron (*Ardeola ralloides* Scopoli) lasted a full ten minutes. The birds struck at each other repeatedly; the Lily-trotter with feet and bill and with wings raised, while the Squacco stood slightly crouched forward, crest and hackles raised with wings slightly fanned while making sudden stabs with its bill. When the Squacco broke off the engagement and flew to other patches of lilies the Lily-trotter followed striking at the back of the bird in flight and would then settle down beside it, walking round and round while making quick sorties. During these attacks the Lily-trotter uttered repeatedly a loud, rather raucous "churring" call.

At Karen nests have been found in the months of December, January, February (the hot dry season) and May, June, and July (the end of the rains in July is usually cold).

The incubation period at the Karen 1961 nest appeared to be 26 days approximately. The bird was observed building the platform on 4th June in the late afternoon and on examination it appeared substantial and complete. On the 8th June it was found to contain four eggs. Two chicks were observed on the 3rd July at midday, already dry, but not very active, while a third chick was struggling between two halves of an egg-shell (one egg remained, later proved to be infertile).

All nests examined at Karen consisted of small quantities of water-lily leaf and debris with bits of other vegetation, Potamogeton, etc., which formed a slightly raised platform usually built on the top of a living water-lily leaf or several leaves. The raised area is about nine to twelve inches in diameter, one or two inches above water level. The vegetation rapidly disintegrates and the bird constantly adds new material obtained in the vicinity of the nest or gathered and brought in her bill a distance away. After two weeks of incubation the nest becomes waterlogged as the surrounding water-lily leaves have been pressed down by the comings and goings of the bird.

At Karen the clutch has been invariably four eggs. In one clutch there were two eggs with abnormal markings. One had pale buff-sandy background with a few black-brown blotches and the second egg was of similar ground colour but almost immaculate; while the remaining two eggs were the usual dark khaki colour heavily marked with fine interwoven black scrolls.

During incubation the hen sits rather hunched up with the wings lowered and held close to her sides, the legs and feet spread well out on either side. The eggs are held against the bird's side by the wings, which appear to "scoop" them up as she sits down. The eggs are not in contact with the nest during incubation. She may sleep for short intervals or peck at odd objects around her, such as bits of vegetation which may be added to her nest; small creatures in the water or on a leaf nearby are sometimes consumed. Flies worried the bird at one nest, and she was an adept at catching them. At one nest a head of papyrus (*Cyperus*), used to camouflage the hide, was "stolen" and partly incorporated into the nest in such a manner that the sitting bird was hidden when viewed from the "peep-holes" in the hide. At other nests the birds have used lily leaves to screen themselves from observation.

Periodically sitting birds would, suddenly and for no apparent reason, leave the nest protesting loudly, running a few yards to tug at water-lily leaves. At other times they would move off the nest only a foot or two to peck at leaf debris which would be flicked back towards the nest. Whether this was a form of displacement reaction or not is uncertain, but it occurred at all nests we have observed. Another reaction on leaving the nest and having run a few feet away across the pads, the bird would suddenly raise her wings "butterfly fashion" perpendicularly above her back, at the same time calling loudly as if in protest. This reaction has been described by Pitman (op. cit.) and has also been observed in the non-breeding season. The male bird indulged in this action on the only occasion it was seen to approach the female on the 1961 nest. The female would, at odd times, leave the nest to feed, which she might do up to a considerable distance away. Occasionally she would join the male. At most nests the male was a regular visitor to the nest vicinity and often enough would give the alarm call if some danger threatened such as the appearance of a raptorial over the dam.

At the 1961 nest the female, in the last week of incubation, would not readily leave even on the approach of the boat to the floating hide. If she did leave she returned as soon as the observer entered the hide. Once on the nest even considerable disturbance, such as waving hands outside and banging on the sides of the hide, would not make her get up or change her position.

The most extraordinary piece of *datum* recorded during the 1958 season concerned a nest containing four eggs one evening, and on the following morning was found empty. However, there were four eggs on a newly constructed nest some twelve to fifteen feet away. This bird had been visited regularly, and it made a new nest during the evening and the following early morning, transporting the eggs over to the new nest. The question that arises is how the eggs were carried—in the bill or under her wings? We have a record of another nest that was rebuilt when it was in danger of submerging. The new nest was within 12 to 18 inches of the original and the eggs could have been rolled from one to the other.

THE CHICKS. The chick, on hatching, appears naked and is a grey-black colour tinged with blue. The feet are *not* conspicuously large. The egg-tooth is quite pronounced and the eyes remain closed for several hours. The chick is extremely weak and only just able to wriggle about. The female picks up the chick in her bill and pushes it under her wings. Two chicks were cared for in this way, but the third chick received very little attention and lay struggling, out in the sun, or just in the water, within reach of the parent's bill. She appeared to take little notice of it, perhaps because she was brooding the two earlier hatched chicks which were dry, though not very strong, and could only just stand up. The plumage of the chicks was as described and illustrated by Benson in Pitman (opp. cit.) and for the first twenty-four hours at least the feet did not appear to be so exaggerated as those depicted by Benson.

On 3rd July when first disturbed this female ran off the nest which was found to contain two eggs, one of which was hatching. It was not for some minutes that two chicks were noted on a lily-pad below the standing parent. When the observer had settled down into the hide and all was quiet the female, all the while uttering a low rather plaintive ''churring'' call, gradually coaxed the two chicks to her breast and helped them, by pushing with her bill, into her sides holding them in position with her wings—one chick on each side. She then returned to the nest to incubate the egg and brood the third chick. It was only after some minutes that she allowed the two dry chicks to leave the security of her wings though the watcher could see the pale grey toes and legs below the primaries. The fourth egg proved to be infertile and was removed from the nest by the bird, being found some feet away. On one occasion Robinson disturbed the parent, which promptly left the nest with the chicks which she deposited on a lily leaf. After a time he watched her deliberately flatten out the rather wind ruffled leaves with her feet so as to make it easy for the chicks to cross to her side (all the time she called quietly to the chicks). Both chicks have been noted under one wing; usually they are carried one under each wing. When carrying the chicks our bird assumed a rather crouched lowered posture and repeatedly squatted on a pad for a few seconds before proceeding again. She pushed her bill under her wings from time to time as if to assure herself the chicks were in position or to adjust their, and possibly her own, comfort. At 24–36 hours old the two chicks were fairly agile and could stand upright while at 48 hours they could follow their parent, though somewhat haltingly. At three days old they could run quite swiftly over the pads. At ten days old they foraged for food well away from the parent but would, on a call from her, either quickly return to her, or hide by squatting down low on the pads. Occasionally when disturbed the chicks would submerge almost completely in water and at 12 days old they were observed to swim readily, again almost completely submerged with only the head above water. The female parent at this stage would still carry the chicks, about with her when alarmed; the chicks' legs below her wings were very conspicuous (see Simpson, op. cit.). (We suggest his chicks were about ten days old. This is judged by the size of the chick in his photographs compared with our pictures taken when chicks were a few hours old to 21 days old.) At 16–20 days old the chicks' reaction was to run, and suddenly squat or hide if disturbed. The parent appeared to control reaction to some extent as she called repeatedly as soon as we approached, but once the boat was still the parent would either call to the chicks to run or would come over to them calling.

At the time of writing these notes, with the chicks away from the nest, the distraction behaviour so well described by Simpson had not been seen but the 1961 bird and others have often gone through the pattern of "wing fluttering", "broken wing" and "broken leg" actions supplemented with "crawling" along the pads to almost lying on the pads while pushing themselves along by their legs. These reactions have often been seen during the last week or so of incubation when the nest has been approached.

A December hatched sub-adult bird seen in March was able to swim very strongly indeed and, though chased in a boat, with the object of taking "close-up" photographs, defied all efforts as it would swim and hide readily under lily-pads and then suddenly disappear only to reappear some distance away. One swim followed was almost 100 yards in length, across the width of the dam over the very deep weed-free water. All that could be seen of the swimming bird was its neck and head with the two "knees" well up above water level paddling furiously.

FOOD AND FEEDING. While feeding, the birds are very active turning over lily leaves and other vegetation and poking here and there into the water to catch small creatures. At the nest the birds have been observed to catch flies and on several occasions I have seen them catch bees flying about in the water-lily flowers. In every instance the bee has been dipped into the water prior to being swallowed. From the hide, with binoculars, we have identified the following food: snails from off the lily-leaves (probably *Bulinus*, *Biomphalaria* and *Lymnaea* with which the dam abounds); gelatinous substance taken from the pads (probably snail egg masses); and larvae of Odonata; as well as smaller creatures which could not be identified.

CALLS. We have failed in attempts to record the various calls which we can only define as "churring" sounds.

SIZE AND SEX OF BIRDS. Mackworth-Praed and Grant (*Birds of Eastern and North-eastern Africa* 1, 1952) state: "Sexes alike but the male is smaller than the female", while Austin Roberts (McLachlan & Liversedge) *Birds of South Africa* 19 states "Sexes alike, the female slightly larger but size variable". Cave and Macdonald, *Birds of the Sudan* 1955 do not comment on the size. It is our experience at all the nests at Karen that the female, the bird that incubates the eggs, is the smaller bird. A number of local observers have checked on this point in recent years at Karen and we are unanimous in our decision. The male is a larger bird, rather obviously so; also brighter in plumage with apparently a greater extent of yellow on throat.

A resident young bird now between six and seven months old, is conspicuously smaller than the breeding birds, while its plumage is rather a dull warm brown on the wings and back and not the rich rufous-chestnut of the mature birds. The whole plumage is generally duller and the yellow on the throat and blue on the culmen are lacking.

Pitman (op. cit.) raises the subject of the posture of the head and neck in flight and our observations tend to confirm that generally the head and neck are somewhat extended when in flight, but we have seen the bird with neck held back, head down, and drawn into the shoulders. This latter posture may be part of a display pattern and often enough we have seen the birds adopt this posture over the pads during part of what might be described as a mating display, when the wings are raised and the birds tend to jump up in short flights. On the other hand because the head and neck are somewhat extended in flight the reader must not compare the extent and formation as being similar to that of a stork; yet the head and neck are not drawn in and hunched after the manner of a heron.

Erythropygia quadrivirgata and allied species

by C. W. Benson and C. M. N. White

Received 17th July, 1961

Clancey (1960) recognises *E. q. rovumae* and *E. q. wilsoni* as distinct from *E. q. quadrivirgata*. We have examined part of the material studied by Clancey, and a considerable body of further material, as listed below under measurements. Except for that of this species under (d) below, in which there is a tendency for the olive of the upperside to be slightly paler, but not sufficiently well differentiated to be worthy of subspecific recognition, we are unable to discern any colour-difference. That under (g) certainly shows a marked tendency to smallness, but we see no particular advantage in recognising *E. q. rovumae* as distinct from *E. q. quadrivirgata* on this basis alone, especially as we are unaware of any discontinuity in distribution.

Wing and tail-measurements in mm. of material examined by us are as follows:—

	Wing	*Tail*	100 x *tail* / *wing*
		E. signata tongensis	
	False and Kosi Bays, and north-east Sibayi, Zululand		
3♂	85, 85, 86	68, 72, 73	83.2

	Wing	*Tail*	100 x *tail* / *wing*
	E. q. quadrivirgata		
	(a) Zululand, Swaziland, Transvaal		
4♂	81, 83, 83, 84	74, 76, 76, 76	88.9
3♀	79,79, 86	68, 68	
	(b) Eastern Southern Rhodesia (Nuanetsi to lower Pungwe)		
7♂	83, 85(4), 86, 88	72, 72, 73, 75, 76, 76, 77	88.0
4♀	76, 78, 80, 82	68, 69, 71, 75	
1o	83	72	
	(c) Zambesi Valley below Victoria Falls; Luano Valley (Northern Rhodesia)		
7♂	82, 84(3), 85, 86, 88	72, 72, 73, 73, 75, 75, 80	87.7
5♀	76, 78, 79, 81, 82	68, 69, 70, 70	
	(d) Zambesi Valley above Victoria Falls, west to Sesheke; plateau country in Southern Province of Northern Rhodesia.		
11♂	81, 83, 85(4), 87, 89(3), 90	71, 73, 76(3), 77, 80, 82, 83	90.0
7♀	77, 78, 79, 80, 80, 81, 85	67, 68, 70, 73, 73	
	(e) Nyasaland (Chiromo southwards)		
7♂	76, 76, 77, 82, 86, 87, 89	66, 66, 69, 75, 75, 76, 79	87.5
2♀	75, 75	63, 64	
	(f) Tanganyika (75 miles north of Songea; Pugu Hills)		
2♂	79, 81	72, 74	91.2
	(g) Coastal Kenya (Sokoke)		
4♂	75, 79, 81, 81	63, 67, 72, 72	86.7
2♀	74, 76	65, 65	
	E. barbata		
	Northern Rhodesia; two specimens from near Kigoma, Tanganyika		
15♂	78, 82(3), 83(3), 84(4), 85(3), 86	61, 64(4), 65(3), 67, 68(4), 70	79.1
16♀	76, 78(3), 79(2), 80(3), 81(4), 82, 83(2)	60(2), 61, 62, 63(3), 64(3), 65(2), 66(2), 67	
3o	79, 83, 85	61, 65, 66	

Tail-measurements are rather fewer than wing-measurements in some cases, due to the tails of some specimens being incomplete or in moult, and are therefore unrecorded above. Tail/wing ratios are of course calculated from the averages of tail and wing-measurements. The sample of *E. signata tongensis* is very small, so that the smaller ratio than in *E. quadrivirgata* may not be significant. Clancey indicates that the size-difference in Kenya birds from other populations of *E. quadrivirgata* is most marked in the much shorter tail-length. Certainly the ratio is lower than in any other population, but not markedly so, and all the figures are in this respect relatively even. On the other hand, the ratio for *E. barbata* is significantly lower than in the *E. quadrivirgata* samples. The number of specimens available in all has been sufficiently large for it to be possible to assert with confidence that *E. barbata* has a proportionately shorter tail.

A few of the specimens of both *E. quadrivirgata* and *E. barbata* appear to have been mis-sexed, and in reality there is probably little overlap in measurements. Thus of 15 specimens of *E. barbata* from the Northern Province of Northern Rhodesia, practically all personally sexed by C.W.B., nine males have wing 82–86, tail 64–70 mm., six females have wing 78–83, tail 60–64 mm. Wing-length maxima for *E. barbata* are not quite so high as in most of the *E. quadrivirgata* samples.

E. signata and *E. quadrivirgata* appear to replace each other almost entirely geographically, but the colour-differences are so marked that they can hardly be regarded as conspecific. But we have in fact examined specimens of both collected by T. Oatley at False Bay, Zululand, and in addition a male from there which is clearly a hybrid, resembling *E. quadrivirgata* on the underside but with the rufous paler, with a greyish wash. On the upperside it resembles rather *E. signata*, but with the rump almost as rufous as in *E. quadrivirgata*. In the extent of white in the tail it is intermediate between the two. Its measurements are not included above. It has wing 85, tail 76 mm.

Oatley tells us that in Zululand, from St. Lucia estuary north to the boundary with Portuguese territory, *E. signata* typically inhabits dense undergrowth in coastal dune forests. By contrast, *E. quadrivirgata* is found in the undergrowth of isolated stands of closed forest west of this littoral area. In the south, at False Bay, where the hybrid was obtained, *E. quadrivirgata* invades in places the habitat of *E. signata*, while in the north, near the Portuguese border, *E. signata* invades to some extent that of *E. quadrivirgata*.

There is no evidence of hybridisation in the samples of *E. quadrivirgata* and *E. barbata*. In Northern Rhodesia, although there is no lack of suitable habitat, there appears in fact to be a gap between the two. Apart from the two specimens from the Luano Valley, *E. quadrivirgata* has been collected as far north as Lochinvar Ranch, only some 60 miles from a specimen of *E. barbata*, from 15 miles south-east of Mumbwa. Further west, in the Kafue National Park, *E. quadrivirgata* has been collected at Nakabula (16° 30′ S., 26° E.), *E. barbata* at Chunga, 100 miles due north. In Nyasaland, they overlap to the extent that *E. barbata* occurs in the littoral of Lake Nyasa at Kota-Kota and again in the Karonga District, with intervening country in the Chinteche District occupied by *E. quadrivirgata* (Benson *et al.*, 1959). While *E. quadrivirgata* is confined to dense forest and thickets, *E. barbata* is frequently also found in open *Brachystegia* woodland.

As there are no published records of the breeding of *E. quadrivirgata* in Northern Rhodesia, it is worth mentioning that a specimen still in spotted juvenile dress was collected near the Kariba Dam on 12th December 1960. Also, J. M. C. Uys saw a nest containing two eggs in the Luano Valley on 27th November 1960. The nest was in the top of a stump, about four feet above the ground.

We are most grateful to Mr. M. P. Stuart Irwin, for the loan of the extensive material in the National Museum, Bulawayo; to Mr. P. A. Clancey, for the loan of material from the Durban Museum, including all the Kenya specimens; and to Mr. T. Oatley, for the loan of the specimens of *E. signata* and of *E. quadrivirgata* from Zululand.

To conclude, *E. signata*, *E. quadrivirgata* and *E. barbata* may be regarded as distinct species forming a superspecies, in which *E. leucosticta* can probably also be included.

References:—

Benson, C. W., Irwin, M. P. Stuart and White, C. M. N., 1959. Some aspects of speciation in the birds of Rhodesia and Nyasaland. *Proc. First. Pan-Afr. Orn. Congr:* 397–414.

Clancey, P. A., 1960. Notes on geographical variation in the South African subcontinental *Erythropygia quadrivirgata* (Reichenow) populations. *Durban Mus. Novit.* 6 (2): 36–38.

A record of Dunn's Lark in the Lebanon

by JAMES M. HARRISON

Received 6th October, 1961

On 20th April, 1961, Dr. R. E. Lewis, of the American University of Beirut Museum of Natural History, obtained an example of the southern and south-western Arabian lark, *Ammomanes dunni eremodites* Meinertzhagen, which had been shot on that day on the sands of Beirut International Airport.

Recognising the fact that this was an unusual bird, Dr. Lewis prepared the skin and brought the specimen with him to this country, generously presenting it to me.

The skin was compared with a good series of this species in the British Museum, Natural History, and was identified as belonging to the above form.

The specimen is an adult female and has the following measurements:—

W. = 88.5 (Type specimen = 86 mm.)
b., length from skull = 15.5 mm.
depth = 8.5 mm.
t. = 21.5 mm.
tl. = 51 mm.

This form was described by Colonel Meinertzhagen[1] in 1923, under the name *Pyrrhulauda eremodites* from a single specimen, an adult female obtained on 15th January, 1922, from Sheik Othman, Aden Protectorate. In his later work[2] the bird is placed by him in the genus *Ammomanes* as *A. dunni eremodites*.

This example would appear to be the first record for the Lebanon and the most northerly record for the species to date.

I would express my very grateful appreciation to Dr. Lewis for asking me to identify the specimen and for presenting it to me, and to Mr. J. D. Macdonald of the British Museum, Natural History, for facilities for comparing the specimen with series in the National Collections.

[1] Meinertzhagen, R., 1923. *Pyrrhulauda eremodites*, sp. nov. Bull. B.O.C., XLIII., 156–157.

Meinertzhagen, R., 1954. *The Birds of Arabia*, 131.

A mass migration of Pelicans in Israel

by James M. Harrison, Haim Hovel and David L. Harrison

Received 28th August, 1961

When motoring to Beersheba and passing through Ramla just south of Lod on 20th April, 1961, our attention was attracted to a distant flight of large black and white birds which we at first thought were Storks, *Ciconia ciconia ciconia* (Linnaeus).

However, as they drew nearer we at once saw that we were witnessing an unusual mass migration of pelicans. As far as we could tell, the birds were all White Pelican, *Pelecanus onocrotalus* Linnaeus, and they were flying due south-east in strict formation in V's and long sinuous lines, flying on fixed pinions at a height of from about 1,500 to 3,000 ft. and losing altitude steadily. The birds passed over Ramla to a point about a quarter of a mile to the south-east as apparently conditions were unfavourable for continuing their journey, for here the formations broke up and the vast cohort, in all we judged about 3,000 birds, milled around in a huge circle, some flying clockwise, others anti-clockwise, all intermingling in a vast cloud of pelican.

We were unfortunately unable to stop to see their subsequent behaviour. We thought that the birds were probably making their way south-east to the Persian Gulf, one of the breeding stations for this species.

There does not seem to be much known about such mass movements, but Meinertzhagen[1] records seeing a mass migration of "many hundreds of birds—over Jerusalem and Beisan on 19th April, birds flying in ragged V-formation at about 3,000 ft. and passing north". He continues "There must have been two distinct movements, for they passed Jerusalem at 9.30 a.m. and Beisan at 2 p.m.".

The different directions of these two mass movements of the pelican, both in spring, suggests of course that those observed by Meinertzhagen were, in all probability, proceeding to the Black Sea, Caspian and Aral Sea areas where there are extensive breeding colonies of the species.

[1] Meinertzhagen, R., 1954. *The Birds of Arabia*, Addenda, No. 33. p. 429: see p. 595.

A new Pipit from Angola

by Melvin A. Traylor

Received 27th June, 1961

In her recent excellent review of the pipits, Mrs. Hall (1961, Bull. Brit. Mus. (N.H.), Zool., 7: 261) has shown that the race of *Anthus similis* inhabiting the plateau region of central Angola is *schoutedeni*, characterized by its short bill and the comparatively long streak of white on the penultimate rectrix. A series of 14 ♂♂ and 9 ♀♀ from Angola in the Chicago Natural History Museum and American Museum of Natural History show the characters ascribed to *schoutedeni*. However, three specimens from the summit of Mt. Moco in the highlands of the Huambo District differ strikingly from the populations of *schoutedeni* found on the lower slopes of the same mountain. They are darker and larger, with a disproportionately longer tarsus.

Since this distinct population occurs within a few miles of *schoutedeni* without any sign of intergradation, it seems to behave biologically as a distinct species, although in all characters it is a typical *similis* representative. The two forms appear to be kept separate by ecological preferences, *schoutedeni* for clearings in *Brachystegia* woodland, and the montane form for the grassy slopes of the summit. However, even though the montane form appears specifically distinct from *schoutedeni*, it approaches *hararensis* of north-east Africa in size and differs from that form only in minor size and colour differences. In fact the most aberrant form of all the African races of *similis* is *schoutedeni*, (Hall, *l.c.*) and were it not for the fact that *schoutedeni* intergrades with *nyassae* it would be simpler to consider it the separate species. Considering the uncertain relationships within the species I prefer to keep this new race in its natural ally *similis*, but I put the specific name in parentheses to show that it behaves as a species with the nearest geographical representative. I therefore, name it:

Anthus (*similis*) *moco* subsp. nov.

Type: adult ♂ from the summit of Mt. Moco, Huambo, Angola. Collected 10th October 1954 by Gerd Heinrich, collector's number 15975. Chicago Natural History Museum number 225300.

Description: nearest to *hararensis* of east and north-east Africa (see White 1957, Bull. Brit. Orn. Club. 77: 30) in general size and colour, but differs from that form in having heavier streaks on the breast, and average longer tarsus and a shorter bill. Differs from the adjacent *schoutedeni* in being darker and more heavily streaked on the breast, and in being larger in all dimensions, with a disproportionately longer tarsus. Agrees with *leucocraspedon* of Damaraland only in tarsal length, differing in shorter bill and tail and slightly longer wing and in being heavily streaked while *leucocraspedon* is the least streaked of all. In the much reduced white on the penultimate rectrix it agrees with all races of *similis* except *schoutedeni* which has a long thin triangle.

Measurement of type: wing 100; tail 72; bill 17.5; tarsus 28 mm.

Range: confined to grassy slopes on the summit of Mt. Moco.

Remarks: Comparative measurements of our material of the various races are:

		Wing	*Tail*	*Culmen*	*Tarsus*
hararensis	6 ♂♂	94–104 (98.5)	72–83 (76)	18–20 (19.0)	25–28 (26.3)
	9 ♀♀	87–94 (90.7)	67–75 (71.1)	18.5–20 (19.5)	24–27 (25.2)
schoutedeni	14 ♂♂	90–98 (94.1)	67–74 (69.0)	15–17.5 (16.6)	23–25 (24.0)
	9 ♀♀	86–90 (88.9)	62–68 (65.6)	16–17 (16.2)	22–25 (23.2)
moco	2 ♂♂	100,103	72, 75	17.5, 18	28, 28
	1 ♀	95	70	16.5	27.5
leucocraspedon	4 ♂♂	91–101 (97.0)	73–79 (76.8)	20–21 (20.8)	26–28 (27.1)

In size *moco* is characterized by its long tarsus and comparatively short bill, the latter relating it to the adjacent *schoutedeni*.

Mrs. Hall examined a specimen of *moco*, but only after her paper was in press. She made a number of helpful suggestions for which I am very grateful, but agreed that its relationships are beyond the reach of our trinomial nomenclature.

The three specimens of *moco* are those listed by Heinrich (1958, Jour. f. Orn., 99: 340) as *A. richardi bocagei* from the summit of Mt. Moco.

BRITISH ORNIT

INCOME AND EXPENDITURE ACCOU

1960 £	EXPENDITURE	£ s. d.	£ s. d.
	"Bulletin" Vol. 81		
504	Cost of publication, distribution, etc. ..	525 11 4	
124	*Less:* Sales	130 6 5	
380			395 4 11
50	Notices, etc. for Meetings		32 7 5
55	Postages, Projectionist and Miscellaneous Expenditure		51 2 8
5	Audit Fee		5 5 0
5	Contribution "Zoological Record"		5 5 0
£495			£489 5 0
76	Excess of Expenditure over Income, brought down		60 7 5
£76			£60 7 5

BALANCE SHEET

1960 £		£ s. d.	£ s. d.
1,353	GENERAL FUND:		
	As at 31st December 1960		1,353 0 4
100	BULLETIN FUND:		
	As at 31st December 1960	100 0 8	
	Added re Ten Year Scientific Index:—		
	Grant from The Royal Society	100 0 0	
	Donations from Members	104 15 0	
		304 15 8	
	Less: Transfer to Income and Expenditure Account	10 6 11	
			294 8 9
85	SUBSCRIPTIONS 1962, paid in advance		80 4 3
63	CREDITORS		80 7 4
1,601			1,808 0 8
	TRUST FUND:		
	(The Capital of this Fund may not be used. The income from it is General Revenue.)		
1,000	F. J. F. Barrington Legacy		1,000 0 0
£2,601			£2,808 0 8

CHARLES PITMAN, *Chairman*
C. N. WALTER, *Hon. Treasurer*

We have examined the above Balance Sheet and Income and Expendi
accordance therewith, and in our opinion correct.

FINSBURY CIRCUS HOUSE,
BLOMFIELD STREET, LONDON, E.C.2.
30th January, 1962.

OGISTS’ CLUB

THE YEAR ENDED 31st DECEMBER, 1961

1960 £	INCOME	£ s. d.	£ s. d.
	SUBSCRIPTIONS:		
249	251 Members	263 11 0	
6	5 Associates	5 5 0	
	Income Tax recovered under Deeds of Covenant		
46	1960/61	54 6 6	
			323 2 6
301			
15	Entrance Fees		— — —
103	INVESTMENT INCOME:		
	General Fund	56 15 5	
	Trust Fund	48 19 8	
			105 15 1
419			428 17 7
76	Balance, Excess of Expenditure over Income, carried down		60 7 5
£495			£489 5 0

1960		£ s. d.
60	Sales of “Bulletin” for previous years, *less* expenses	50 0 6
16	Transfer from “Bulletin Fund”	10 6 11
£76		£60 7 5

31st DECEMBER, 1961

1960		£ s. d.	£ s. d.
	GENERAL FUND, INVESTMENTS:		
	4½% Defence Bonds, at cost	1,000 0 0	
	3% Savings Bonds 1960/70, at cost	100 0 0	
		1,100 0 0	
	Less: Reserve	20 0 0	
1,080	(Market Value £1,079)		1,080 0 0
1	PROJECTOR, LANTERN & SCREEN—Nominal Value		1 0 0
1	STOCK OF “BULLETIN”—Nominal Value ..		1 0 0
5	DEBTORS		— — —
514	CASH AT BANK		726 0 8
1,601			1,808 0 8
	TRUST FUND, INVESTMENTS		
1,000	3½% War Stock £1,399 11*s.* 0*d.* .. .. .. (Market Value £729)		1,000 0 0
£2,601			£2,808 0 8

unt with the books and records of the Club and certify them to be in

W. B. KEEN & Co.,
Chartered Accountants.

British Ornithologists' Club

REPORT OF THE COMMITTEE

BRITISH MUSEUM
[illegible]
NATURAL HISTORY

MEETINGS

The Club held seven meetings during the year at which the total attendance was 310. In addition there was a meeting in October in conjunction with the British Ornithologists' Union. A joint Meeting was not held in March because of the B.O.U. Conference at York.

At a Special General Meeting held on 19th September 1961 a Special Resolution was passed stating that any member of the Club who had had an unbroken membership for fifty years should become a Life Member and be exempted from paying any further subscriptions. Under it, Major Anthony Buxton, Dr. David Bannerman, Capt. Collingwood Ingram, Sir Philip Manson-Bahr, Colonel R. Meinertzhagen, Mr. D. Seth-Smith and Dr. N. F. Ticehurst become Life Members.

MEMBERSHIP

The Committee very much regret to record the death during 1961 of Lt. Colonel H. G. Brownlow. There were 13 resignations and 26 new members were elected, bringing the total membership to 257.

FINANCE

The Accounts for the year 1961, submitted herewith, show that the Expenditure exceeded the Income by £60, and after setting-off against this, £50 received from sales of old "Bulletins", there was a net deficit for the year of £10. A transfer from the "Bulletin Fund" has been made to meet this.

Commencing with November, 1961 printing charges were increased again, by 5%. In addition, the Committee feels that the Club should be prepared to contribute towards the expenses of Lecturers. Unless some very material increase in the number of members occurs, the result for 1962 is, therefore, likely to show an excess of expenditure of about £130.

The rate for members subscriptions has remained unchanged at £1 1*s*. 0*d*. per annum from 1934; it is now evident that an increase is necessary. The proposals of the Committee in respect thereof are given with the Notice of the Annual General Meeting.

C. R. S. PITMAN,
Chairman.

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 4*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 4*s*., payable to the Hon. Treasurer, C. N. Walter, Finsbury Pavement House, 120 Moorgate, London, E.C.2.

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Miss E. Forster, The Double House, Wiveton, Holt, Norfolk.

DINNERS AND MEETINGS FOR 1962

17th April, 15th May, 18th September, 16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

10 MAY 1962
PURCHASED

Volume 82
No. 5

May
1962

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 82
Number 5
Published: 7th May, 1962

PURCHASED

Annual General Meeting

The seventieth Annual General Meeting of the British Ornithologists' Club was held at the Rembrandt Hotel, S.W.7 at 5.30 p.m. on Tuesday, 17th April, 1962. Captain C. R. S. Pitman took the chair.

(1) The Minutes of the last Annual General Meeting, held on 18th April 1961, were read and confirmed.

(2) It was proposed by Mrs D. Bradley, seconded by Miss P. Barclay-Smith and Resolved that the Report and Accounts for the year 1961 be duly adopted.

(3) It was proposed by Miss P. Barclay-Smith, seconded by Mr P. A. D. Hollom and Resolved that the following Special Resolution be duly passed:—

> "Rule 4 in paragraph 1, second line, delete "a subscription of £1 1*s.* 0*d.* per annum" and substitute "a subscription of £1 10*s.* 0*d.* per annum".

(4) It was proposed by Miss P. Barclay-Smith, seconded by Mr P. A. D. Hollom and Resolved that the increase in the subscription of Members shall not apply to Members who have given a Deed of Covenant until the expiry of their existing Deed.

(5) It was proposed by Mr C. W. Mackworth-Praed, seconded by Mr J. J. Yealland and Resolved

(*a*) That Major General C. B. Wainwright, C.B. be elected Chairman vice Captain C. R. S. Pitman, C.B.E., D.S.O., M.C. who retires under Rule 1.

(*b*) That Mr R. S. R. Fitter be elected Vice-Chairman vice Mrs B. P. Hall under Rule 1.

(*c*) That Mr Peter Hogg be elected to the Committee vice Mr I. J. Ferguson-Lees who retires in rotation.

(*d*) That Mrs B. P. Hall be elected to the Committee vice Mr R. S. R. Fitter on his election to Vice-Chairman.

(*e*) That Dr J. G. Harrison be elected Hon. Secretary vice Miss Elizabeth Forster who is retiring after having held this post for two years.

(*f*) That Mr P. Tate be elected Hon. Treasurer vice Mr C. N. Walter who is retiring after having held this post for twelve years.

On behalf of the Club the Chairman expressed his gratitude to Mr Walter for his twelve years devoted service as Treasurer, during which time he had safely guided the Club through numerous difficulties thus enabling him to hand over its affairs, notwithstanding the necessity to increase the annual subscription, in what can be considered a satisfactory and encouraging state; and to Mrs Hall, not only Vice-Chairman but also Programme Secretary who, despite frequent disappointments and frustrations, has at the monthly meetings, provided entertainment in considerable variety and originality—its appreciation being reflected in the greatly increased attendances. Mr John Yealland was welcomed as the new Editor of the *Bulletin* and Dr Jeffery Harrison, the former Editor—unfortunately not present—was gratefully thanked for all he has done to maintain the *Bulletin* at so high a standard during the ten years in which he held this onerous office. Miss Forster's services, too, as Honorary Secretary had been greatly appreciated. Mr C. W. Mackworth-Praed asked that this testimony should be recorded in the Minutes. Miss Phyllis Barclay-Smith paid generous tribute to the outgoing Chairman.

(6) It was proposed by Mr C. N. Walter, seconded by Mrs B. P. Hall and Resolved that a vote of thanks be given to Messrs W. B. Keen & Co., the auditors.

The five hundred and ninety-eighth monthly meeting of the Club was then held.

Chairman: CAPT. C. R. S. PITMAN

Members present, 28; Guests, 12. Total 40.

Filming Wild Nature—fair means or foul

Mr Max Nicholson took the chair for this discussion and the principal speakers were people concerned with the production of nature films for television programmes.

The chairman, in his opening remarks and later introduction of individual speakers, endeavoured to inject controversy into the debate, but though there was some divergence of outlook, the speakers found themselves in agreement on all the major issues. There *was* an "other side", but it was not represented at the meeting.

Bruce Campbell opened the discussion with an excellent summary of the issues involved. Short film extracts showed such points as the use, in a single item, of film taken on different occasions; the cutting from natural habitat to an artificial scene; the filming of events in a season different from that in which they naturally occur and the use of tame animals to illustrate behaviour. He questioned the justification of major manipulation of habitat, contrived confrontations of different species in a confined space and the reconstruction of unverified behaviour.

Colin Willock ably defended the contriving of film shots in documentary and feature films, but emphasised that these were justified only if they were necessary to re-create a story.

Peter Scott spoke of the objectives in such work—the need to make people share our appreciation of what we believe is worthwhile and to awaken their sense of wonder. He criticised contrived situations and faked filming and claimed that direct filming without contrivance or manipulation evoked greater appreciation. Treating animals as expendable during film-making he considered indefensible—with possible reservations in the case of flies and worms.

Aubrey Buxton defended the documentary approach on the ground that the need was to reach and interest the general public. His claim that sounds could be added afterwards was later challenged.

Jeffery Boswall summed up the general feeling by advocating a code of conduct ensuring that no cruelty or unreasonable disturbance were involved in film-making and that nothing inaccurate was shown on the screen.

The addition of a sound-track later, especially where bird-calls were concerned, was aired in the general discussion. A plea was made for film producers to bear in mind the effect that discovery of deception could have on the young naturalist.

The size of the sexes in the African Lily-trotter *Actophilornis africanus* (Gmelin)

by C. J. O. Harrison

Received 6th April, 1962

In a paper on the African Lily-trotter *Actophilornis africanus*, Cunningham-Van Someren and Robinson (1962) disagree with other authors concerning the sizes of birds of different sexes. They state ". . . the female, the bird that incubates the eggs, is the smaller bird". Miller (1931) found that in the American Jacana *Jacana spinosa* the smaller male incubates the eggs and cares for the young. Hoffman (1949) describes this for the Water Pheasant *Hydrophasianus chirugus* which is a polyandrous species. An examination of the skins of *Actophilornis africanus* in the British Museum (Natural History) reveals that in sexed specimens the males are the smaller birds. It would appear that in this species, as in other Jacanidae, the females are larger and more brightly coloured, and the male incubates the eggs and cares for the young.

References:

Cunningham-Van Someren, G. R. and Robinson C. 1962. Notes on the African Lily-trotter *Actophilornis africanus* (Gmelin) *Bull. B.O.C.* 82: 67–72.

Hoffman, A. 1949. Uber die Brutlpege des polyandrischen Wasserfasans, *Hydrophasianus chirugus* (Scop.) *Zool. Jahrb.* (*Systematik*) 78: 367–403.

Miller, A. H. 1931. Observations on the incubation and care of the young in the Jacana. *Condor* 33: 32–3.

Abnormal white, yellow and fawn plumages

by Noble Rollin

Received 6th September 1961

A pale Blue Tit, *Parus caeruleus*, observed at close quarters in the field, was found to have the head, wings and tail white, the back, rump, scapulars and under parts yellow. Apart from some very small marks near the bill, the plumage was devoid of melanin pigment. The bird was dark-eyed. As the normal Blue Tit is largely blue and white on the head, blue on the wings and tail, absence of melanin in these parts simply left white in the abnormal bird. The back of the normal being green, due to the suffusion of brown and black melanins with yellow, in the abnormal bird without melanin, only yellow remained. The normal under parts having no melanin to begin with, the breast of the abnormal bird remained as before, yellow.

This bird being dark-eyed, was neither an albino nor a lutino and was in fact a combination of a dark-eyed white and a dark-eyed yellow.

This Blue Tit can be compared profitably with a relatively recent mutation in the Budgerigar, *Melopsittacus undulatus* (Shaw), the Yellow-faced Blue which combines both white and yellow grounds. It is almost certain that the pale Blue Tit was the result of a single mutation, as it is extremely unlikely that separate mutations for the blue areas and for the yellow areas should have chanced to take place at the same time. The mutation was therefore simply to a dark eyed white, the yellow which was separately inherited occuring in certain areas. This is as would be expected as it is quite usual for carotenoid pigments to persist in the absence of melanin. Under domestication the self yellow canary, *Serinus canarius* (Linnaeus), which lacks melanin, is a good example. This has been hybridised with the Hooded Siskin, *Spinus cucullatus* (Swainson), resulting in hybrids which combine the red carotenoid pigment of the Hooded Siskin with yellow carotenoid of the canary in the total absence of melanin from either species.

One point which was particularly looked for in this pale Blue Tit was as to whether it had dark pigment at the basal or proximal part of the feathers. In normal Blue Tits this can frequently be seen as a dark line at the junction of the breast feathers. There was no sign whatever of basal pigment in the pale bird. In plumage examinations undertaken by the author the presence or absence of basal pigment has proved over and over again a vital distinguishing mark between normal and abnormal plumage. Its absence at the base of the breast feathers on the Blue Tit showed that these feathers although superficially appearing as in the normal bird (i.e. yellow), were in fact mutant in the same way as the rest of the plumage.

The pale Blue Tit first appeared at the feeding tables of Mrs. A. Hardy of Alnwick, Northumberland, who kindly gave me facilities for watching it. The bird was first seen on 1st December 1959 and became a regular attender through the winter. A letter about it was published in the *Field* (Hardy, 1960) where it was stated to be pale creamy yellow but the presence and extent of the white areas was not described. This Blue Tit appeared to be as strong and healthy as any of the many normal birds coming to feed, and was later reported to be nesting. It reappeared the following autumn at the beginning of December 1960 with a normal bird thought to be its mate. It was about regularly until towards the end of May 1961 (A. Hardy *in litt.*).

The plumage of the Greenfinch, *Chloris chloris* (Linnaeus), is of a yellow ground. Where the melanin pigment is retracted, particularly in portions of the wing and tail and less conspicuously on the belly, the yellow comes through. An adult specimen kept at the World Bird Research Station at Glanton, Northumberland, which had previously had normal plumage, moulted out with a pale patch, approximately 8 mm. x 12 mm., at the right hand side of the head in the ear-covert region. There was also a very slight development, visible only when the bird was in the hand, on the left side of the head. The patch was yellowish to begin with, but when examined closely just before the moult it had faded to a general dull white with only a very little yellow left. The patch appearing for the first time after the bird was fully adult was certainly non-hereditary, and was probably produced either in the way white feathers appear in Blackbirds, *Turdus merula* Linnaeus, (Rollin, 1959), or as in the Archangel pigeon described below. The yellow in the patch on the other hand was part of the normal hereditary yellow carotenoid pigment. This was a case of normal hereditary yellow pigment being carried on non-hereditary white feathers. It can be compared with the pale Blue Tit where normal hereditary yellow was carried on abnormal hereditary white feathers.

A somewhat similar case occurred in a Rock Pipit, *Anthus spinoletta petrosus* (Montagu), which was resident on the Farne Islands and which had the forehead and anterior part of the crown yellow. These yellow feathers faded until in the summer in the field they appeared white. The marking was permanent, being re-moulted each year. As the marking was on the bird when it was first seen (as an adult), there is no means of judging if it was hereditary or not, but by parallel examples it seems most likely that it was another case of hereditary carotenoid pigment carried on non-hereditary white.

An Archangel pigeon, a heavily pigmented domesticated variety of *Columba livia* Gmelin, was kept at the Station at Glanton for six years prior to developing any abnormal white plumage. It then produced a white feather near the junction of the neck and upper breast on the right side. On being removed this feather was replaced once more by a white one and similarly after the annual moult it was replaced again by white. This feather was pure white to the base. This was a clear case of development of permanent non-hereditary white, the feather being white rather than yellow-red because *C. livia* does not carry carotenoid pigment. The same lack of carotenoid pigment applies, of course, where abnormal feathers are hereditary, thus a feral ''blue-rock'' pigeon, *C. livia*, had a non-carotenoid abnormal white feather throughout its life, in a somewhat similar position to that on the Archangel. It was moulted each year. Close inspection revealed in addition two very small white feathers behind the eye. The abnormal feathers were white to the base. Breeding tests showed that this bird was heterozygous for white and that the white feathers were in fact hereditary. These abnormal hereditary white feathers on the ''blue-rock'' were indistinguishable from the non-hereditary white feather on the Archangel.

Mutation to fawn has occurred in several species under conditions of domestication, including Budgerigars, Zebra Finches, *Taeniopygia castanotis* (Gould), and Canaries. Where the bird is a yellow or lutino (i.e. carotenoid with ''dark'' or ''pink'' eyes respectively) the so-called cinnamon plumage is produced. This mutation appears to suppress black melanin, leaving only brown melanin. Mutation in the opposite direction with the brown suppressed has been suggested by Harrison (1961) as the explanation of a variant of the Grey-headed Wagtail, *Motacilla flava thunbergi* Billberg. A fawn Starling, *Sturnus vulgaris* Linnaeus, an obvious example of the former mutation, appeared in the wild at Glanton and was studied at the Station. It was very pale brown when first seen on 4th March 1960 and the bird lacked most of the gloss of the normal, which was to be expected in the absence of heavy black pigment. White breast spots were present and appeared to be normal but were inconspicuous because of the pale plumage. The bird did not sing much and had the light eye colour described by Bullough (1942) for normal females. That it was a female was confirmed the following year when mated to a normal male and copulation took place. In June 1960 the bird began to moult, the new feathers being quite deep brown and ultimately the whole bird became this deeper colour. There was, however, no sign of any black pigment. In this plumage the breast spots were more conspicuous. On 8th April 1961 a second fawn Starling in faded plumage, appearing identical with the original bird when first observed, was seen about three-quarters of a mile from Glanton, in company with normal birds. Both fawn Starlings appeared strong and healthy.

SUMMARY

Hereditary and non-hereditary abnormal plumage is described. The feathers of the two types of plumage may be indistinguishable.

A pale mutant Blue Tit, lacking melanin in the plumage, was shown to be both a white and a yellow, not an albino or a lutino. The bird showed clearly how the species combines the two hereditary characteristics of white and yellow ground.

Hereditary yellow superimposed on non-hereditary white in the Greenfinch is described. An apparently similar case in the Rock Pipit is discussed. In contrast non-hereditary white and hereditary white in a non-carotenoid species, *Columba livia*, is described.

Fawn and cinnamon mutations are briefly discussed and two fawn Starlings are described.

A valuable distinction between normal and abnormal plumage is whether or not there is dark pigment at the base of the feather. In abnormal plumage, both hereditary and non-hereditary, there is usually none, whilst in normal plumage there is very frequently pigment, often heavy, at the base of the feather.

References:

Bullough, W. S. (1942). Reproductive cycles of the British and Continental races of the Starling. Phil. Trans. Roy. Soc. London. Series B. 231: 165–246.

Hardy, A. (1960). *Field.* Vol. 215.

Harrison, C. J. O. (1961). A variant plumage of the Grey-headed Wagtail *Motacilla flava thunbergi* Billberg. *Bull. B.O.C.*, 81: 47–48.

Rollin, N. (1959). White plumage in Blackbirds. *Bull. B.O.C.*, 79: 92–96.

An Aberrant Specimen of *Lybius undatus leucogenys* Blundell and Lovat

by MELVIN A. TRAYLOR

Received 27th June, 1961

Among the specimens of *Lybius undatus leucogenys* in Chicago Natural History Museum is a male from Sisha, Sidamo Province, Abyssinia, that differs from any other that I have seen or found described. All those areas that in normal birds are yellow, the wash on the belly, the edgings of rectrices and remiges and the tips of the rump feathers and upper tail-coverts, are in this male, bright orange.

Macdonald (1938, Ibis: 348) has discussed variation in *undatus*. He points out that *leucogenys* was described from a variant in which the throat is white, irregularly tipped with yellow or red, instead of glossy black. While white-throated birds are most common in the west of Abyssinia, they crop up elsewhere in the south and south-west, and he considers the white throat more an individual than a geographic variant. The present specimen is intermediate in this respect, having a few white feathers on the throat, two of which are tipped with red. Macdonald also describes a melanistic mutant in which the head is normal but the body is brownish black except for thin yellow edging on some of the inner secondaries.

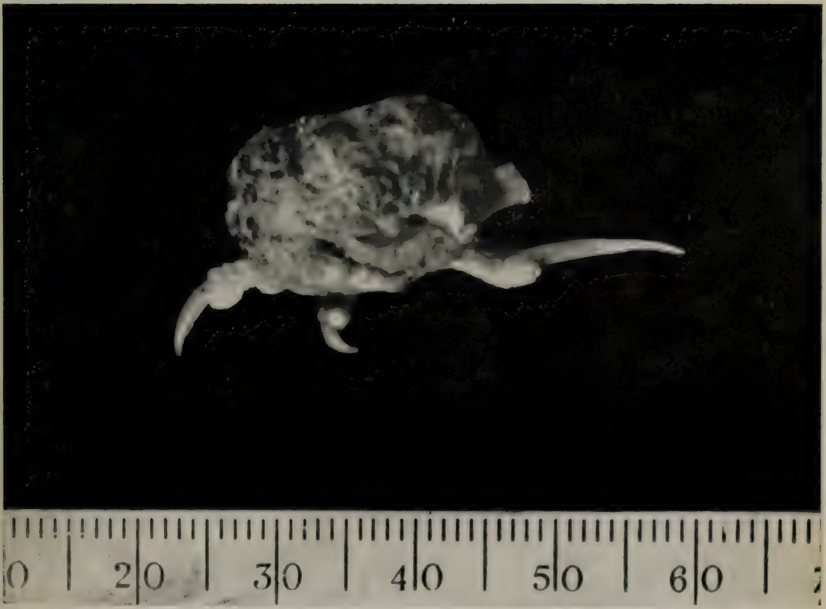
Although the orange-washed specimen appears to be a mutant, I hesitate to call it that because it appears to be moulting into this aberrant plumage from a normal one. The body plumage is fresh and the wings and tail are just completing moult. The second and third secondaries on each wing, however, are still of the previous plumage and they have yellow edgings as in normally plumaged birds. Considering the known variability of the species, this could be a mutant in which the aberrant characters do not appear until the adult plumage. On the other hand, the change in colour may be due to some abnormal element in the diet which enriched the yellow pigments, and not have any genetic basis.

A benign tumour of the foot of a Crested Lark

by JAMES M. HARRISON AND HAIM HOVEL

Received 1st September, 1961

On 14th October, 1959, one of us (H.H.) shot a Crested Lark, *Galerida cristata altirostris* Brehm at Beersheba; the bird was frequenting the rubbish tip. On examining it a large tumour was found involving all the toes of its left foot (Fig. 1). The bird was in good general condition and



Simple Chondroma of Crested Lark's foot

weighed 483 grammes. An X-ray examination revealed no bony involvement. Tissue for culture was sent back to Mr. A. H. Heather, to the Sevenoaks Hospital and material for section was also submitted at the same time.

A direct smear showed many organisms of various types as might be expected from its visits to the garbage dump of a big city, but no *M. tuberculosis* were found. Culture grew some Acid-Alcohol fast bacilli, but protracted subculture, for which we are indebted to Dr. A. McDiarmid of the Agricultural Research Council, failed to establish the condition as tuberculous.

Dr. Keith Randall, Consulting Pathologist to the Sevenoaks Hospital reported that the "section shows a simple chondroma, being composed of ill-formed irregular cartilage throughout the section examined".

This case would evidently appear to be one of a simple chondroma in view of Dr. Randall's report, and the few Acid-Alcohol fast bacilli found at the primary culture are to be regarded as contaminants.

Our thanks are due to Dr. Keith Randall, Consulting Pathologist, Dr. Hugh Hay, Consulting Radiologist to the Sevenoaks Hospital, to Dr. McDiarmid and to Mr. A. H. Heather for the above investigations.

A European Green-winged Teal with a white neck-ring

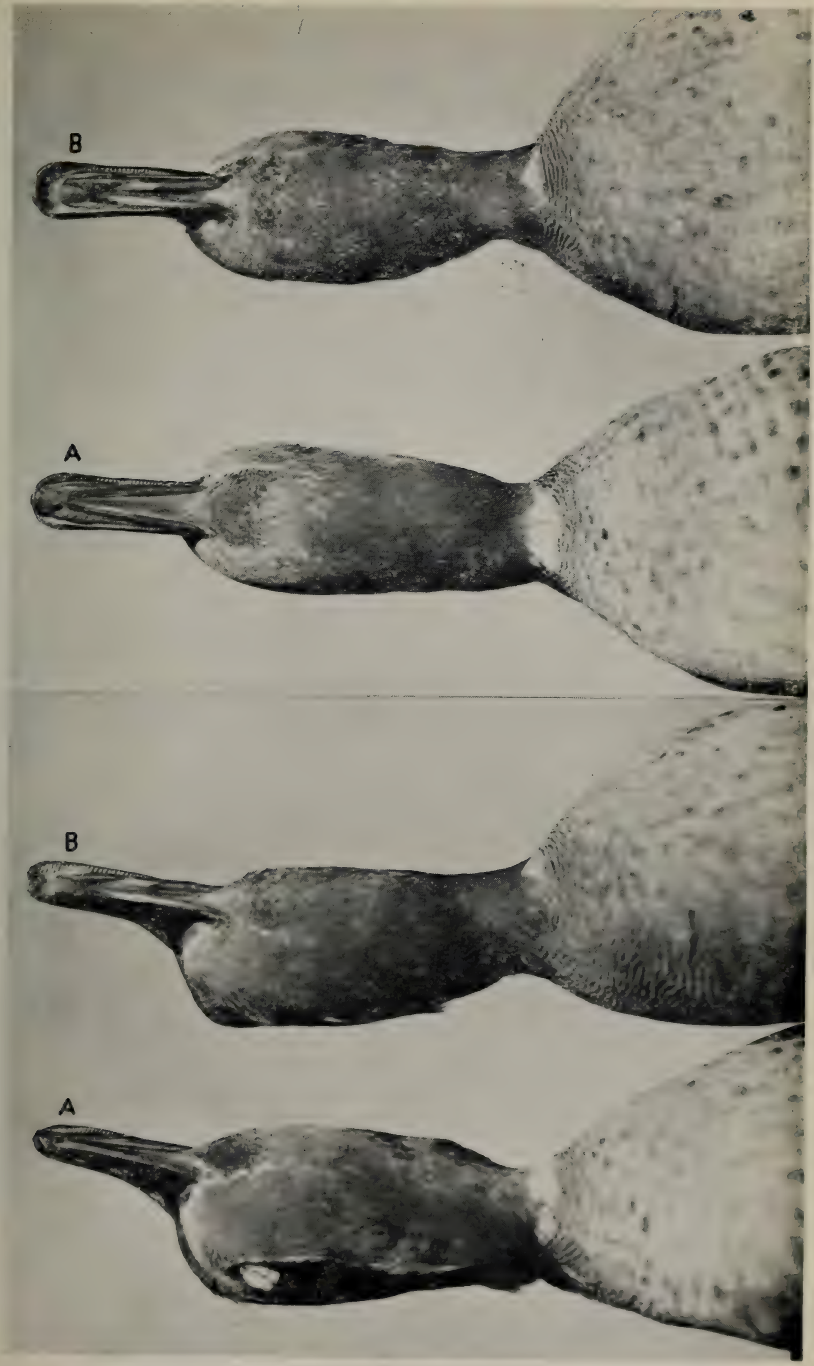
by James M. and Jeffery G. Harrison

Received 5th December, 1961

In a previous paper (Harrison, 1958) we drew attention to an homologous recurring character in drakes of the European Green-winged Teal, *Anas crecca crecca* Linnaeus, and the Yellow-billed Teal, *Anas flavirostris flavirostris* Vieillot, in the form of a white spot, as a rule slightly triangular in shape, at the root of the neck anteriorly. In this paper we listed six examples of this mutation. More recently we have also suggested that this white neck-spot was homologous to the white semi-ring of the drake Mallard, *Anas platyrhynchos platyrhynchos* Linnaeus, (Harrison, 1961), being a minimal expression of the character.

Our latest example to be described is a fully adult drake European Green-winged Teal, which was shot on 5th November, 1961 on the Medway Estuary, Kent, by Mr. Charles Swan. The remarkable thing about this bird is that the white marking has assumed the character of the white semi-ring of the drake Mallard. As can be seen from the photograph, (specimen A) the white marking extends well onto the sides of the neck. It is the same shape although not quite so extensive as in the Mallard, moreover it is proportionate to the size of the bird. For comparison, the specimen is shown beside one with the more usual white neck-spot variant, (specimen B) a first winter drake shot on the Medway Estuary, Kent on 18th November, 1961. A further example, almost as extensive as on specimen A, but not included in the photograph, was shot by Mr. Ross Young near Kenmare, Co. Kerry, Eire on 2nd December, 1961.

We would submit that this specimen fully confirms our contention set out above and that this homologous recurring character is to be regarded as of reversionary significance, suggesting a close affinity between the Mallard and the European Green-winged Teal.


B
A
B
A

Our thanks are due to Mr. Swan and Mr. Young for presenting us with these remarkable birds.

References:

Harrison, James M. and Jeffery G. (1958). "The White Neck-spot Variant in the European Green-winged Teal and the Yellow-billed Teal". *Bull. B.O.C.* Vol. 78. pp. 104–105.

Harrison, James M. and Jeffery G. (1961). "Albinistic patterning in the Mallard, Muscovy, Mandarin and Salvadori's Ducks". *Ibid* Vol. 81. pp. 168–172.

Notes on the distribution and eggs of some waterfowl

by C. J. O. Harrison

Received 17th November, 1961

During a recent rearrangement of the eggs of the Anseriformes in the collection of the British Museum (Natural History) use was made of Delacour's "Waterfowl of the World" (1954–8). It was found that some of the data slips with the eggs gave information supplementary to that quoted in Delacour's work.

Anser cygnoides (L). Delacour, when tracing the earliest records of this species in captivity, suspected that the birds kept at the London Zoo in 1863 were not the wild Swan Goose but its domesticated form, the Chinese Goose. These suspicions were well founded for eggs laid at the London Zoo during this period and now in the Museum collection are mostly inscribed "Black-legged Chinese Goose", indicating that the domestic bird was kept there at this time.

Anser albifrons albifrons (Scopoli). Two eggs of this species (B. M. no. 1925. 12. 25. 5346–5) from the Davidson collection are accompanied by the following data in J. Davidson's catalogue—

"Two out of a clutch of four taken on Franz Josef Land (Cape Chance) 21. 6. 98, and sent to me by Mr. Dobbie. Taken Lunderstrand by Dr. W. S. Bruce."

Delacour's map of the distribution of this species does not show the breeding range extending thus far into the Arctic.

Coscoroba coscoroba (Molina). Four well-authenticated clutches of the eggs of this species (B. M. no. 1913. 5. 7. 57–63; 1920. 12. 3. 568–574, 575–581, 582–589) were taken in the Buenos Aires province of Argentina by Mr. and Mrs. Ernst Gibson. One is dated 29th June 1889, and another 18th August 1915.

There are two other clutches of this species with less adequate data inscribed "Rio Grande do Sul". One, of six eggs, is from Dr. Ihering's collection, the other, of two eggs, from the P. Crowley collection, ex Gerrard, and both would have been collected in the nineteenth century and may have originally formed a single clutch.

Delacour's map of the breeding distribution sets the northern limit of this species at the Rio Negro, but all the eggs mentioned were collected well north of this. In view of the date of the clutches it seems possible that this may represent a shrinking of the breeding range due to the spread of civilisation in this part of South America.

Anser coerulescens coerulescens (L.). A clutch of five eggs was taken by M. D. Smith at Great Slave Lake in Canada on 26th June 1884. (B. M. no. 1901. 11. 15. 651–5). Delacour does not show this species breeding south of the Great Bear Lake, farther north.

Branta canadensis asiatica Aldrich. It is stated that the eggs of this extinct race of Canada Goose are unknown. A single egg in the collection (B. M. no. 1910. 1. 1. 5848) taken by H. J. Snow on the Kurile Islands, is elliptical, creamy-white, with a slightly rough surface, and measures 87.4 x 55.1 mm.

Oxyura jamaicensis ferruginea (Eyton). In part of its range in Chile the breeding distribution of this duck overlaps that of *Oxyura vittata* (R. A. Philippi) which is present over most of southern South America. The two species are very similar in appearance but *O. j. ferruginea* is the larger of the two. The eggs of *O. vittata* from various parts of its range fall within the limits—length 62–8 mm. breadth 44–9 mm. According to Delacour the eggs of *O. j. ferruginea* are undescribed. An examination of the eggs in the Museum collection revealed that, among eggs which, from their size, were referable to *O. vittata* there were four larger eggs (B. M. no. 1898. 1. 4. 654, 656–7, 660). These measured 72.6 x 54, 73 x 49.9, 71 x 50.8, 70.5 x 50.2 mm. They were typical *Oxyura* eggs, more ovate than elliptical and creamy-white with a finely pitted surface. They had a rather glossier surface than the eggs of *O. vittata*, resembling in this respect the eggs of *O. j. jamaicensis* (Gmelin) in the collection which are still more glossy. It is reasonable to suspect that these are the eggs of *O. j. ferruginea*, but confirmation of this description is still needed.

On the races of *Estrilda nonnula* (Hartlaub)

by H. E. Wolters

Received 18th August, 1961

When comparing a series of 15 adult specimens of both sexes of *Estrilda nonnula* (Hartlaub), collected by Prof. M. Eisentraut on the Cameroon Mountain in 1957 and 1958, with a series of 29 specimens from various parts of the species' range, most of which were kindly lent by the Musée Royal de l'Afrique Centrale at Tervuren, it was at once apparent, that Cameroon Mountain birds represent an extremely well differentiated subspecies. Birds from all levels of this mountain are much greyer on the underparts than specimens of any other part of the range and agree with the description of *Estrilda elizae* Alexander, *Bull. Brit. Orn. Cl.*, 13, p. 54 (1903), formerly thought to be restricted to Fernando Po. Four females from other districts of Cameroon (M'balmayo, Mus. Bonn; Bitye, River Ya, Mus. Tervuren) are also darker underneath than females from the more eastern parts of the species' range, but have the underparts much more brownish-grey, not so pure grey as in Cameroon Mountain birds; these females are nearly matched, however, by one male from Nandi (Kenya Colony, Mus. Tervuren) and one unsexed bird from Astrida, Ruanda (Mus. Tervuren).

All other birds of the more eastern parts of the range are much lighter on the underparts, sometimes nearly pure white, although there appears to be a tendency to be tinged with fawn in fresh plumage, especially in birds from Uganda and the Kivu district; two males from Ruwenzori (6,000 and 7,000 ft.) are somewhat greyer than other eastern birds, but by far less so than birds from the Cameroon Mountain. Although I have not seen topotypical material of *Estrilda nonnula nonnula* (*Astrilda nonnula* Hartlaub, Journ. Orn., 31, p. 425: Kudurma), there are no reasons to doubt that Bahr el Ghazal birds agree with other birds of East Africa, and

East African as well as Congo birds may safely all be called *E. n. nonnula*, while I should call Cameroon Mountain birds *E. n. elizae* Alexander like those from Fernando Po; birds from the more southern parts of Cameroon may at present be regarded as intermediates between *E. n. elizae* and *E. n. nonnula*. My Cameroon Mountain birds (all in the Bonn museum; coll. Eisentraut) are from all levels, from near sea-level (Isobi, near Bibundi) up to about 3,000 metres.

I wish to thank Prof. M. Eisentraut, Prof. G. Niethammer and Prof. H. Schouteden for their kind assistance with material.

Albinism in Northern Rhodesian birds

by J. M. WINTERBOTTOM

Received 11th December 1961

Benson (*Bull. Brit. Orn. Club.* 81, 1961: 146) in his list of albinistic birds from Northern Rhodesia, has overlooked that of *Euplectes hordeacea* from the Msandile (Winterbottom, *Ibis*, 1938: 276); of *Streptopelia senegalensis* from the Gwembe valley (Winterbottom, *N. Rhod. J.*, 1, 4, 1951: 30); and of *Plocepasser mahali* (Winterbottom, *N. Rhod. J.*, 1, 6, 1952: 39).

A new race of the grebe *Podiceps chilensis* from Lake Junin, Peru

by K. E. L. SIMMONS

Received 16th November, 1961

The small ornamented grebe *Podiceps chilensis* Lesson, 1828, of the mainland of South America and Tierra del Fuego, is either treated as a monotypic species (e.g. Wetmore 1926; Peters 1931) or is combined with the closely related *P. rolland* Quoy and Gaimard, 1826, of the Falkland Islands (most modern authors, including Hellmayr and Conover, 1948). For various reasons, I think it preferable, both from the biological and practical point of view, to keep *P. chilensis* distinct from the much larger, isolated *P. rolland*, treating the former as a full species and the latter as a semispecies, the two together forming an incipient or "simple" superspecies (Simmons 1962 and unpublished). Whatever the status given to *P. chilensis*, it is invariably treated as a monotypic form, so far as I have been able to ascertain. Recently, however, while engaged in a survey of the Podicipitidae, I concluded that this grebe was polytypic. The present note gives formal taxonomic designation of a new race of *P. chilensis*, leaving consideration of the biological implications of the discovery for treatment elsewhere. The examination of skins was undertaken in the Bird Room of the British Museum (Natural History) by kind permission of the Director. I am indebted to the staff of the Bird Room for facilities.

Part of my work on the Podicipitidae involved making simple standard measurements for interspecific comparisons. Ten specimens (five male and five female if possible) of any one species were selected. While obtaining the first series of values for *P. chilensis*, I found one specimen, a female collected at Lake Junin (Peru) in May 1890, to be unusually large in comparison with the rest of the sample: 3 mm. greater in length of tarsus, 5 mm. in length of bill and 1 mm. in depth of bill. Morrison (1939) had already remarked that nine specimens of *P. chilensis* from Junin averaged longer in the wing than seven from Uruquay and Argentina, but he found the British Museum series inconclusive. In all, five specimens from Lake Junin were available to me and these were compared with samples of *P. chilensis* from elsewhere in South America, viz. [1] ten specimens from the "South" (Tierra del Fuego, Straits of Magellan, southern Chile and Patagonia); [2]ten specimens from "Central, east" (Buenos Aires province, Argentina); [3]ten specimens from "Central, west" (central Chile, including birds near the type locality of the species), and [4]"North" (Bolivia and Peru excluding Lake Junin). The results are given in Table 1. On the evidence, the Lake Junin population of *P. chilensis* seems sufficiently distinct to warrant subspecific rank and I, therefore, have pleasure in naming it after Alastair Morrison, collector of the type specimen, in tribute to his work on the birds of Lake Junin.

Podiceps chilensis morrisoni subsp. nov.

Diagnosis: In average size of tarsus, bill and wing, Lake Junin birds are larger than any of the other four populations of *P. chilensis* measured (see Tables 1 and 2). Taking tarsal-length as an indication of overall body-size, the Junin birds reverse the apparent trend of a decrease in body-size from south to north shown by the other populations, following Bergmann's rule.

Distribution: Confined to Lake Junin, Peru, on the periphery of the range of the species.

Type: Male (Brit. Mus. Reg. No. 1946. 49. 64), collected by A. Morrison on 5th April 1938. Data from original label: testes, c. 7 mm.; bill, black; feet, outside black, inside greyish.

Measurements: tarsus, 39 mm.; bill, 24 mm. (length), 10 mm. (depth); wing, 114 mm. The specimen is in worn nuptial plumage, in the first stages towards eclipse. The black parts of the plumage are less intensely black than in full nuptial garb, those of the head and neck having a decided brown tinge and those of the upper breast and upper parts being edged with golden-brown. The elongated black and white feathers of the head ornamentation are somewhat reduced. Two females collected at the same time as the type by Morrison show even more signs of oncoming eclipse, and a male is in similar plumage to the type but is in full wing-moult. A female collected in May 1890 is in full eclipse plumage.

Comments: Measurements of *P. c. morrisoni* and of the nominate race *chilensis* are given in Table 2. It seems best at present to treat all but the Lake Junin birds as belonging to the nominate race. Northern birds (excluding the Junin population) may well have a smaller bill than all other populations and a longer wing than all but Lake Junin birds. However, the sample is inconclusive, being small, old and in poor condition; further examination of better material is needed. Hellmayr and Conover (1948) state that birds from Peru and Bolivia average slightly but insignificantly *larger* than birds from elsewhere (no details given). It is possible that they included measurements of the large Junin birds in their sample.

The existence of an endemic race of *P. chilensis* on Lake Junin is of considerable interest in view of the presence of an endemic species, *P. taczanowskii*, there also, and throws light on the possible trends in the derivation of the other, even more distinictve forms of grebes of the same sub-group as *P. chilensis*, namely *P. rolland*, confined to the Falkland Islands, and especially *P. micropterus*, confined to the Titicaca basin (Simmons 1962 and unpublished).

TABLE I

Measurements (mean and range in mm.) of some populations of *Podiceps chilensis*

	tarsus	*bill-length*	*bill-depth*	*wing*
(1) South*	37.8	19.2	9.3	108.2
	(35–42)	(18–23)	(8–9)	(102–116)
(2) Central* east	37.4	20.2	9.5	102.2
	(35–41)	(17–23)	(8–12)	(97–111)
(3) Central west	36.8	19.8	9.7	106.1
	(35–38)	(17–23)	(9–10)	(103–110)
(4) North	36.8	17.4	8.8	110.2
	(35–39)	(17–19)	(8–10)	(109–111)
(5) Lake Junin*	39.4	23.0	10.5	113.2
	(37–41)	(20–25)	(10–11)	(110–115)

Notes: (1) For definition of localities see text.

(2) An asterisk indicates an equal or nearly equal distribution of the sexes among the sample; samples unmarked are composed largely of unsexed specimens.

(3) Measurements are to the nearest millimetre.

(4) "Tarsus" = diagonal from the middle of the hind part of the joint between tibiotarsus and tarso-metatarsus to the end of tarso-metatarsus; "bill-length" = chord of exposed culmen (bill from feathers); "bill-depth" = depth at base of bill, behind nostrils; "wing" = distance from carpal joint to end of longest primary (wing flattened).

TABLE II

Measurements (mean only in mm.) of (1) nominate *P. chilensis* and (2) *P. c. morrisoni* (Lake Junin)

	tarsus	*bill-length*	*bill-depth*	*wing*
(1) *P. c. chilensis*	37.3	19.4	9.4	106.2
(2) *P. c. morrisoni*	39.4	23.0	10.5	113.2

Notes: (1) Mean values for the nominate race are based on the measurements of 35 specimens from the first four localities listed in Table 1.

(2) If the figures for northern birds are discarded from the nominate sample (see text) the mean values become 37.3, 19.7, 9.5 and 105.4 respectively.

References:

Hellmayr, C. E. and Conover, B. 1948. Catalogue of the birds of the Americas and the adjacent islands. *Pub. Field Mus. Nat. Hist.* (*Zool. series*) 13, part 1 (2).

Morrison, A. 1939. Notes on the birds of Lake Junin. *Ibis:* 643–654.

Peters, J. L. 1931. *Check-list of birds of the world*, 1. Cambridge (Mass.).

Simmons, K. E. L. 1962. Some recommendations for a revised check-list of the genera and species of grebes (Podicipitidae). *Bull. B.O.C.* (in press).

Wetmore, A. 1926. Observations on the birds of Argentina, Paraguay, Uruguay and Chile. *Bull.* 133 *Smithsonian Institution, U.S. Nat. Mus.*

Bird predation by the North American Snapping Turtle, *Chelydra serpentina* L.

by Charles R. S. Pitman

Received 5th July, 1961

In North America predation of waterfowl by the Snapping Turtle, *Chelydra serpentina* can be considerable, according to the relative abundance of turtles and birds, but generally it is not regarded as a serious menace except possibly during the peak waterfowl breeding season. Otherwise, as a rule, birds are taken infrequently and constitute only incidental food. These turtles are most plentiful where there are shallow expanses of warm water with abundant stands of emergent and floating vegetation. Investigations during the period when predation is likely to be highest were carried out in eight areas in the Maine marshes, in the extreme north-east corner of the United States. 171 turtles were collected, and of the 157 in which food was present bird remains were found in about one in every four turtles. 42 turtles contained evidence of a minimum of 52 birds, which included 25 ducks, 11 grebes, 3 rails and 13 unidentified. The ducks were:— 7 Black Duck, *Anas rubripes* Brewster; 5 Ring-necked Duck, *Aythya collaris* (Donov.); 3 Golden-eye, *Bucephala clangula* (L.); 2 Wood Duck, *Aix sponsa* (L.); 2 Blue-winged Teal, *Anas discors* L.; 2 obscure surface-feeders and 4 unidentified.

Most were young birds of up to six weeks, but there were three adults; usually one bird only had been taken, but a 31 lbs turtle contained five birds, *viz.* one Ring-necked Duck, one Golden-eye and three Pied-billed Grebes or Dabchicks, *Podilymbus podiceps* (L.); and a 24 lbs example had eaten two Black Ducks, one unidentified surface-feeding duck and one grebe. Four other Snapping Turtles, varying from 11 lbs to 41 lbs had each taken two birds. Surface-feeding ducks were taken twice as frequently as diving ducks, although both groups were equally plentiful.

Field observations of turtles actually catching birds provided strong circumstantial evidence that most stomach material was from direct predation, though a proportion of carrion is taken. Evidence of duck remains may be found in digestive tracts for as long as twelve days.

During five seasons' (1949–1953) investigations in six different areas, bird remains in the turtles caught varied from 42 per cent to 17 per cent, with an average of 27 per cent. In 1949 when water was low and density of both turtles and ducks high, 13 (42 per cent) out of 31 turtles taken in one locality during a nine-days period contained a total of 18 birds—9 ducks, 5 grebes, 1 rail and 3 unidentified. In this locality in the same period the duckling hatch was estimated to be 192, of which about four per cent *viz.* 8 ducklings and one duck were taken by Snapping Turtles. One turtle was captured for every eight acres of water surface, and as the great majority of turtles are never seen and many others are preying at the same time, it is possible that the total mortality these reptiles caused to the duck population was as much as 13 per cent. But mortality is only significant when both turtles and ducks are abundant.

Of 21 turtles examined from a Michigan pond of about 20 acres water surface, with a nesting waterfowl population in excess of one pair per acre, three contained a total of four Mallard, *Anas platyrhynchos* L.

At a waterfowl refuge in Vermont, during 1950, ducklings were found in four out of ten turtles examined, yet in the same locality, during 1951, birds were found in but two out of 23 turtles.

PURCHASED

In another investigation, out of 25 turtles caught in thirteen days, eight (32 per cent) contained evidence of 10 ducks and two grebes.

106 turtles which were trapped in 39 days scaled a total of one ton, an average weight of 21 lbs.

I am most grateful to all those who have so kindly assisted me with information and references.

References:
1943 Alexander, Maurice M. Food habits of the Snapping Turtle in Connecticut. *Journal Wild Life Management*, 7 (3), 278–282.
1943 Lagler, Karl F. Food habits and economic relations of the Turtles of Michigan with special reference to fish management. *Amer. Midl. Nat.*, 29 (2), 257–312.
1954 Wright, Bruce S. *High Tide and East Wind.* The story of the Black Duck.
1957 Coulter, Malcolm W. Predation by Snapping Turtles upon Aquatic Birds in Maine Marshes. *Journal Wild Life Management*, 21 (1), 17–21.

Note on the Paradise Flycatcher *Terpsiphone viridis* (Müller) in Southern Africa

by FINN SALOMONSEN

Received 16th February, 1961

Having read the interesting paper by W. J. Lawson in *Bull. B.O.C.* vol. 82, 1962, p. 26 on *Terpsiphone viridis* I feel it necessary to add a few comments. Lawson divided the pale-throated populations into two forms, a southern one, *violacea* (Grant & Mackworth-Praed), with white under tail-coverts, and a northern one, *plumbeiceps* Reichenow, with rufous under tail-coverts (the difference being best seen in males). However, Lawson apparently overlooked the fact that I have reached exactly the same result a few years ago (Salomonsen 1949: 84–87), although I had to draw another nomenclatorial conclusion. My study was primarily based on the large collection in The British Museum (Nat. Hist.), the Musée du Congo Belge in Tervueren and the Zoologisches Museum in Berlin. The difference between the two forms in question is clinal, the coloration of the under tail-coverts changing gradually from whitish to cinnamon in the populations of Portuguese Angola, Kasai and Northern Rhodesia. The type locality of *plumbeiceps* is Malange in Angola. Seven adult males from this locality were examined; of these two had white under tail-coverts, four yellowish and only one cinnamon (*cf.* the table on p. 85 in my paper). As specimens with yellowish under tail-coverts are sometimes found also in the southern populations, the birds from Malange appeared to be nearest to them, and the name *plumbeiceps* could, at any rate, not be used for the form with cinnamon under tail-coverts inhabiting S.E. Congo. Consequently, I described the northern form as a new subspecies and called it *subrufa*. To the north *subrufa* is replaced by *kivuensis* Salomonsen in Ruanda Urundi and parts of Kivu, further east by *suahelica* Reichenow (of which *ungujaensis* and *ruwenzoriae* are synonyms). The differences between *plumbeiceps* and *violacea* are so slight, almost non-existent, that *violacea* must be regarded as a synonym to *plumbeiceps*. Lawson is right when presuming that even the northern form (*subrufa*) migrates to the north in the non-breeding season; several specimens have been found in the rain forests as far north as Kunungu (near Bolobo) in northern Congo.

References:
Lawson, W. J., 1962. On the distribution of the races of the Paradise Flycatcher, *Terpsiphone viridis* (Müller) in Southern Africa. *Bull. Brit. Ornith. Club* 82, pp. 26–30.
Salomonsen, F., 1949, Two New African Paradise-Flycatchers (*Terpsiphone*). Dansk Ornith. Foren. Tidsskr. 43, pp. 84–87.

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 4*s.* each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s.* (payable in advance) or per copy 4*s.*, payable to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1962

15th May, 18th September, 16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

BRITISH MUSEUM NATURAL HISTORY

31 AUG 1962
PURCHASED

Volume 82
No. 6

September
1962

31 AUG 1962
PURCHASED

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 82
Number 6
Published: 1st September, 1962

The five hundred and ninety-ninth meeting of the Club was held at the Rembrandt Hotel, London, on 15th May, 1962.

Chairman: CAPTAIN C. R. S. PITMAN

Members present: 24; guests 4; total 28.

The Chairman welcomed Dr. Rudyerd Boulton, Dr. Herbert Friedmann and Mr. A. R. Tribe.

Exhibition of a hybrid duck

Dr. J. M. Harrison exhibited and commented upon a Red Shoveler X Northern Shoveler (*Anas platalea* x *A. clypeata*). A paper on this specimen will be published in the *Bulletin*.

The breeding of the Lily-trotter or Jacana (*Actophilornis africanus*) in Kenya was the main feature of a film for which the Chairman provided a commentary. There were also excellent sequences of the White-backed Duck (*Thalassornis leuconotus*) at the nest, the Red-knobbed Coot (*Fulica cristata*) and other birds inhabiting the lake.

Further reflections on the British List

by ALLAN R. PHILLIPS

Received 21st November, 1961

Excellent as they are, the comments of Fitter and others (*Bull. B.O.C.* 81: 93–95, 1961) do not reach the heart of the problems involved, chief among which is the need of a clear distinction between scientific data and mere speculation. The former are data that have been and *can be verified:* specimens available for re-examination by competent taxonomists at any time. Specimens once available and examined by a capable taxonomist should, I believe, also receive credence, though of course their loss is regrettable. Anything else is unverifiable, as far as technical details are concerned, and can only be classified as speculative.

Even with specimens, the question of escaped birds is, as we all know, a difficult one. We should therefore urge that not only the skin of a rarity, but also its *body*, should be preserved for study by specialists. Thus search can be made for any abnormalities produced by captivity. It is most desirable that all aviculturists should co-operate by keeping all their birds clearly marked in case of escape. Nevertheless, the escape hazard has been exaggerated.

The taxonomist can sometimes throw light on this question of possible escapes. For example, a Kiskadee Flycatcher, *Pitangus sulphuratus* (Linn.), was once collected in California. Local bird students claimed, naturally, an accidental occurrence from the distant Mexico/Texas range of the species, which is absent from the adjacent parts of the south-western United States. But an alert taxonomist noted certain discrepancies, and the bird was found to be of a South American race, obviously escaped from captivity!

Fitter exaggerates the doubtful elements in specimen records. Few will agree that it is a ''fact that no individual record can be 100% certain for all time''. To mention but a single one, there is the well known American Bittern, *Botaurus lentiginosus* (Montagu), described by two different authors from Dorset. *Any and all* specimen records *are* 100% certain for all time if they fulfil the requisites of science: (1) the collector is trustworthy; (2) the possibility of escape has been ruled out; and (3) the identification has been verified by competent taxonomists. The museums of the world are full of 100% certain records, most of which appear in the various regional check-lists and elsewhere in the literature. My own collection contains dozens of specimens which, at the time, appeared to be accidental occurrences, though several have since become regular or even common species in their respective localities. (For some such cases, see *Auk* 57: 117–118; *Condor* 51: 137–139, 52: 78–81, 55: 99–100, and 59: 140–141). Nearly all of my accidental specimens were personally collected and prepared, and all represent 100% certain records for all time, once published. It is true that many older specimens, and not a few newer ones, were very poorly or even inaccurately labelled; the older museums, and those modern ones that are supplied by ordinary, unreliable professional collectors, contain specimens which cannot withstand a critical investigation (of the accuracy of their data) and others which are misidentified. Nevertheless, as the late Dr. Joseph Grinnell said, a specimen preserved and *properly labelled at the time* is a scientific document; and no matter how long it may lie in a museum drawer unrecognized its true identity will eventually come to light. Witness Dr. Friedmann's discovery of the earliest specimen of Baer's Pochard, *Aythya baeri* (Radde), an accidental from north-western America which had lain unrecognized for over a century in the United States National Museum.

It is, incidentally, by no means so difficult to preserve a specimen as many ornithologists seem to think. We often read of birds found in too poor condition to preserve; but this is never the case, really. Often they cannot be made into first-rate skins, but enough can *always* be saved to establish the record. Perfectly acceptable skins have been made from birds found mashed in highways or riddled by shot. In the case of birds, particularly non-passerines, *without* close relatives, the trunk skeleton should preferably be saved as well, and indeed if the bird is long dead a full skeleton is the best way of preserving it; however, the remiges, rectrices, tarsi and toes should be preserved intact (not skeletonized). Where identification is more critical, in groups with many similar species, a skin or partial skin should be saved; feathers in place, but loosened and about to fall, may be salvaged by prompt application to their bases of a good glue or of one of the preparations used by paleontologists to strengthen crumbly fossils. At least, the wings, tail, head and feet can normally be preserved without difficulty. Preservation by injection and immersion in strong alcohol or formalin is not generally desirable due to the loss of colour values which precludes later critical evaluation, as for example subspecific comparisons. Anatomical studies should be made on more suitable material.

It is my contention, then, that an ornithologist wishing to claim any record as *scientific* evidence usually can and should preserve a specimen and submit it for proper identification. We all know of specimens in the hand that have been misidentified; why then should we be asked to place more faith in the identification of rarities seen at a distance, or perhaps handled by one who is unfamiliar with abnormal plumages, hybrids and the true taxonomic characters of the group involved? Such evidence can *never* be verified. As one who has probably found as many "accidentals" as any living ornithologist, the great majority of which are preserved for study, I may perhaps be permitted to question the alleged "immense recent increase in skill in field identification" so generally believed. To be sure, our binoculars, telescopes, and books are better than those we once had, but occasionally our "rare" bird proves to be a freak of some common species, or a hybrid. Those bird students who do not habitually collect, handle and identify specimens *cannot possibly know* whether they are right or wrong; they have no way of learning the tricks played by light, distance, moult, feather wear, accidental loss of feathers, dwarfism, albinism, erythrism, melanism, hybridization, etc. This is not a matter of any one observer, photographer, or netter; we can readily grant that a bird showed certain markings, if several observers saw them, but we still do not know details on which a correct determination may rest. I therefore cannot agree that dubious records of "extreme rarities" have any value, much less consider them "especially valuable". I have known too many cases of birds being placed in the wrong *family* by allegedly expert bird-students whose field experience had never been tempered by judicious collecting.

The barriers to collecting of rare birds should be removed. Can anyone imagine that a vagrant, even in the unlikely case that it should survive to breed, would make the slightest difference in the survival of its local population, much less its race and species? The loss to science in not being able to identify the bird accurately is not balanced by the slightest gain to the species. The place for the identification of suspected extra-limital species is in the museum, with adequate series for comparison.

Dr. Loye Miller aptly compares many distributions of animals to waves on a beach. Their numbers fluctuate from year to year; in good years they spread out to occupy sub-marginal habitats, while in bad years they are to be found only where conditions are especially favourable. Superimposed on this, some groups show tidal effects, spreading out more and more into previously unoccupied territory or withdrawing from parts of the former range. In none of these cases will the collecting of one or a few individuals have the slightest effect on the ultimate outcome. The only birds that have ever been seriously affected by direct hunting by man are (1) very large birds, persecuted for their flesh, feathers, or (by gamekeepers) to eliminate predation or supposed possible predation; (2) exceptionally gregarious birds, of which whole flocks could be wiped out at once and (3) flightless birds, particularly those that could be driven onto ships to supply fresh meat. In general, these are exactly the types of birds that scientists have *not* collected to any extent.

Attempts to protect rare birds by prohibiting collecting have been almost universal failures. In Arizona, for example, of the four species long prohibited, two have never since appeared in the state while the other two appear irregularly. On the other hand, locally very rare birds without such restrictions have, in all cases, maintained their numbers and indeed often spread out in spite of the loss of occasional individuals to a collector.

If, then, the real object of prohibiting collecting were to aid the birds rather than to hinder science, such prohibition would be limited to breeding or possibly breeding birds during the season of eggs and dependent young, and would include bans on disturbance by non-collectors as well. The real threat to birds today is the constant destruction of their habitat, as every ornithologist knows so well. In the future, then, the usefulness or uselessness of nature conservancies and other conservation groups will surely be judged by their effectiveness in conserving important habitats, not their anti-scientific activities. It is high time that these well-meaning organizations awoke to the fundamental fact that birds are not men nor elephants; an average bird lives two or three years, so that the survival of any population depends on its ability to nest successfully in nearly every year—a function of the habitat and of freedom from disturbance, either by man or by an over abundant natural enemy such as the over numerous gulls now so unwisely protected in some areas.

All of this, then, supports the conclusion that ornithology can and should continue to be a *science*. I would therefore suggest that Fitter's Part I, "the scientifically most important part", should include *all* the scientific data, *i.e.* all the data based on specimens, from which all non-specimen data are to be *clearly distinguished*. Part II can then contain the speculative species, based on more or less doubtful specimens, probable escapes, introduced birds that have not established themselves, field observations, etc., which the Committee feels to be worth mentioning.

One final comment: the Committee need not worry so greatly about assisted passages from North America. Why, of all the ships plying the world's seas, do only these carry birds, and why only at certain times?

Further notes on some bird/other animal associations in Africa

by CHARLES R. S. PITMAN

Received 11th November, 1961

During a visit to the Masai Amboseli Game Reserve in Kenya in September 1961, a young elephant feeding in the shallows at the edge of a swamp was seen to be followed—like gulls behind a plough—by a dozen Lily-trotters, *Actophilornis africanus* (Gmelin) eagerly darting hither and thither to feed on the aquatic life being stirred up.

A somewhat similar incident was witnessed in Uganda on the River Nile, in the Murchison Falls National Park, a little later when a frightened crocodile moved through a shallow pool covered with floating vegetation, mainly Nile cabbage (or lettuce), *Pistia stratiotes.* A Lily-trotter, with butterfly-wise flicks of its wings, skipped across the backs of two other crocodiles to pick up the aquatic organisms which had been disturbed. In the course of the same trip, a Goliath Heron, *Ardea goliath* Cretzschmar, was seen standing on the back of a semi-submerged hippopotamus—one of a small huddle—close to the bank.

In Uganda's Queen Elizabeth National Park, at a place where a wallow harboured a huddle of 90 + hippos alongside a breeding colony of the Yellow-backed Weaver, *Ploceus melanocephalus dimidiatus* (Antinori and Salvadori), these weavers were incessantly flying down and perching on the animals, on which were also perched one Hammerkop, *Scopus umbretta bannermani* C. Grant, and a few Buff-backed Herons or Cattle Egrets, *Bubulcus ibis* (Linn.). In another wallow in this Park, where an astonishing huddle contained 200 + hippos, a few of these creatures which were nearest to a Nile cabbage-covered shallow lagoon had Cattle Egrets on their backs.

At a wallow in the same Park where several bull buffaloes, four giant forest hog and one warthog were disporting, it was noticed that Oxpeckers, *Buphagus africanus* Linn. were in attendance on the buffaloes and warthog, but not on the very hairy (coarse long-haired) giant hog.

Albinism and melanism in birds (as illustrated by the Mallard) and their possible significance

by JAMES AND JEFFERY HARRISON

Received 20th November, 1961

INTRODUCTION

This communication is to be regarded as supplementary to our previous papers (1957, 1961). Albinism and melanism often appear as striking discontinuous variations in many different species, but one has also to recognise the fact that in dimorphic species such phases form part of a normal morphology.

Examples come readily to mind, one of the best known being, of course, the melanistic mutant of the covert pheasant, *Phasianus colchicus* var. "*tenebrosus*", other instances being the black phases of Montagu's Harrier, *Circus pygargus* (Linnaeus), Arctic Skua, *Stercorarius parasiticus* (Linnaeus) and Reef Heron, *Egretta schistacea* (Ehrenberg). In East Africa the Little Egret, *E. garzetta* (Linnaeus) has melanistic phases ranging through a pale lavender grey, sooty grey, slaty grey to a blackish slate, while as an example of a species having a blue form one may cite the Lesser Snow Goose, *Anser coerulescens coerulescens* Linnaeus.

Genetically albinism is explained by the recombination of recessive genes giving rise to a state of recessive dominance, while the dominance of black over white is known to be due to lack of tyrosinase, the precursor of melanin in the white individuals.

The genetic investigation of such phases in the wild, however, presents great difficulties. Melanism forms a not unusual character of sexual dimorphism in some species, a familiar example being provided by the jet black male of the Blackbird, *Turdus merula* Linnaeus, while again it can appear precipitously and mysteriously as in the case of a female Red-billed Dioch, *Quelea quelea* (Linnaeus) reported by Disney, Lofts and Marshall (1961) and apparently due to captivity conditions, as many thousands of wild specimens had been examined without a single case of melanism being observed. This problem has since been investigated by Lofts (1961) and it was established that captivity melanism could be reversed by a brief exposure to ultra-violet light during the moult.

It is well known that through the pressure of natural selection many melanistic forms enjoy a survival advantage, for instance in areas of industrial contamination, or on dark soils, as in the cases of the black form of the Peppered Moth, *Amphidiasis betularia* (Linnaeus) var. "*doubledayaria*", and the Peat Partridge, *Perdix perdix sphagnetorum* (Altum).

The classification of albinistic subjects may still be regarded as somewhat arbitrary, and the condition can range through rather haphazard mosaics, resulting from the mating of an individual carrying a recessive gene for white with a normal individual. In such cases varying degrees of the pied state result in the progeny, conforming to the laws of Mendelian inheritance, and these always have normal coloured irides, though the other soft parts may share in the pied condition.

Such individuals are not true albinos, for they are constitutionally virile and well able to compete with individuals of normal colour. The true albino, with colourless (pink) irides and the other soft parts lacking all pigment, is to be regarded as pathological with a poor survival prospect. In previous papers (1957, 1961, *loc. cit.*) instances of a definite albinistic pattern have been given. Thus, in an inbred Mallard population this was seen as an increasing symmetrical albinism of the primaries of both sexes associated with the enlargement of the white neck ring in drakes and the appearance of a white chin spot. Both of these features gradually enlarge and coalesce and finally a completely white individual results. This effect is known to have come about without the influence of any white call-ducks and furthermore, similar patterns are found in the Mandarin, *Aix galericulata* (Linnaeus) and Salvadori's Duck, *Anas waigiuensis* (Rothschild and Hartert).

The occurrence of albinism in an inbred population of the Grey Lag Goose, *Anser anser* Linnaeus is also noted from Castlecoole, Co. Fermanagh, Ireland by Deane (1954).

In the Carrion Crow, *Corvus corone* Linnaeus and the Jackdaw, *Corvus monedula* Linnaeus, a distinctive albinistic patterning takes the form of white wing-bars appearing on the primaries and secondaries, and occasionally this is associated with a white or light bar on the proximal part of the tail feathers, (J.M.H., 1957). As a further example of the leucistic pattern one may mention the "mottled" Rook.

Many species other than the ducks already mentioned have been recorded with symmetrical albinistic primaries, and this is particularly frequent in the domestic pigeon, often in association with an albinistic tail.

The domestic Muscovy Duck, *Cairina moschata* (Linnaeus) is another excellent example, for a majority in this country now constantly have white primaries and white heads, while a grey-and-white barred and a leucistic variant also occur. A further example in which symmetrical depigmentation occurs with the production of white-banded wings is recorded by Fritz *et al* (1946). This was associated with a dietary deficient in lysine fed to bronze-wing turkey poults when it was established that from 1.1 % to 1.2 % is required to ensure normal growth and pigmentation, and that the condition could be reversed by administering crystalline lysine. Deficiency of pantothenic acid also gives rise to feather depigmentation.

The above findings are confirmed by the work of Vohra *et al.* (1956) on rats where greying of the hair resulted from a diet deficient in lysine. Kratzer *et al* (1950) referring to the work of Fritz *et al.* (*loc. cit.*) comment as follows, "From these experiments it may be concluded that lysine plays some rôle in the hair of rats as well as in the feathers of turkey poults". It is clear that lysine in some way, when deficient, interferes with the synthesis of melanin.

Albinistic patterning is not confined to birds, for in domestic mammals, the familiar "belted" variety is found in Galloway cattle and in saddle-backed pigs, while in the wild, an albinistic belted variant has been recorded in the Common Shrew, *Sorex araneus* (Linnaeus), by David Harrison (1957, 1961) and a bat *Scotophilus nigrita* Schreber, showing approximately symmetrical white wing markings, was obtained at Filabusi, Southern Rhodesia on 12th January, 1961. We are informed by Dr. David Harrison (*verbatim*) that symmetrical albinistic wing-patterning has so far been found in two families of bats, *viz.* in the Nycteridae and Vespertilionidae.

On 17th December, 1961, Dr. David Harrison obtained from Chevening a remarkable mutation in a dog fox, *Vulpes v. crucigera* Bechstein in which all four extremities are more or less white and which in general characters resembles the Asiatic form *V. v. pusilla* Blythe. A detailed description of this animal is in the course of preparation by him.

Such examples as these could be extended considerably, but they are sufficient to illustrate the point that they are in quite a different category to those of partial haphazard albinism, and in our opinion such are reversionary in origin.

Island and cave albinism are important to note for both these are isolating mechanisms favouring inbreeding and the exposure of recessive characters. Instances of the former are found in the Raven, *Corvus corax* Linnaeus in Iceland, though as a rarity, and formerly in the Faeroes, though now extinct, and in the Quail, *Coturnix cotunix* Linnaeus on the Azores. A well known instance in mammals is afforded by the white reindeer on Kolguev.

While all classes of Vertebrata show albinism it must be mentioned that in fish it is relatively rare. That the phenomenon is very widespread is emphasised by the fact that it occurs widely in the Invertebrata, a circumstance which stresses such cases as fundamental in nature.

It is necessary here to refer to traumatic albinism. In mammals Duerst

(1926) and Schultz (1918) have shown that this state can be induced by the experimental infliction of wounds which, on healing, have grown long white hairs. In birds the repeated plucking of feathers from the same area has resulted in depigmentation. Noorduijn (1905), Pearl and Boring (1914), Krizenecky (1930) have confirmed that albinism resulted by plucking in two different breeds of domestic fowl and the same author (*loc. cit.*) records another case of asymmetrical albinism in a Green Woodpecker, *Picus viridis* Linnaeus in which the right wing showed two white secondaries and some white wing-coverts which it was presumed were due to healed gun-shot wounds. Nero (1960) working on the Red-winged Blackbird, *Agelaius phoeniceus* (Linnaeus) has obtained somewhat anomalous results to traumatic albinism by plucking, for by producing forced moults in the black innermost wing-coverts he succeeded in the third regeneration in producing pied feathers. Significantly he also succeeded in producing a definite depigmentation from the bright red of the "epaulets" of the fully adult male to an orange-brown colour by repeated plucking. In the experiments carried out he was able to exclude sex hormone as responsible for the changes produced. However, even this experimental depigmentation was not entirely constant for one specimen regrew scarlet "epaulets" which were actually brighter than those of the normal bird, and it was noted that some individuals regrew depigmented, *i.e.* orange-brown feathers which were also black spotted. It is, however, stressed that the "epaulets" in immatures are normally highly variable ranging in colour from yellow to reddish-orange.

It would seem, therefore, that although it has been established that traumatic albinism and traumatic depigmentation occur, the aetiology of the condition is uncertain and experimental responses are variable. It is our opinion that as a natural phenomenon it cannot but be regarded as a rare cause for either state in the wild. Such cases would appear to be on a parallel with the sudden blanching of the hair in a human subject following a severe illness, shock following trauma or grievous emotional disturbance. Some cases of depigmentation in game birds could also possibly result from traumatic shock resulting in an endocrine imbalance. This loss of melanin is referred to by Fox and Vevers (1960) in the following terms "As a final instance of loss of melanin it may be noted that injury can be responsible for the disappearance of melanocytes. Thus they may be destroyed in the dermal papillae of hairs by X-ray, after which subsequent hairs are white. In bay and chestnut riding horses, new hair growing from healed saddle sores is likewise white."

DISCUSSION

The inter-relationship between natural selection and habitat is universally admitted and it is not without interest to examine some of the very contrasting colour types which can coexist and survive equally successfully in a marine or coastal environment. The contrastingly pied Alcidae bear this out. Of especial interest within this group one may mention as typical amongst others the Common Guillemot, *Uria aalge* (Pontoppidan) and the Black Guillemot, *Cepphus grylle* (Linnaeus) with its wholly black mutant form *C. g.* "*motzfeldi*". Examples in the Anatidae are afforded by the European Scaup, *Aythya marila* (Linnaeus) and New Zealand Black Scaup, *A. novaeseelandiae* (Gmelin).

Exactly parallel examples of species inhabiting a coastal terrain are to be found in the Oystercatchers, for the New World representative of *Haematopus ostralegus* Linnaeus, *H. o. palliatus* Temminck coexists on the western coast of North America with the Black Oystercatcher, *H. o. bachmani* Audubon. In Australia also the Sooty Oystercatcher, *H. fuliginosus fuliginosus* Gould further exemplifies the point that neither a marine nor a coastal habitat would appear to impose very rigid adaptations on the bird-life inhabiting them, whereas a terrestrial environment indisputably demands a closer assimilation as a condition of survival.

These generalisations are not irrelevant to our subject as can be seen from the series of Mallard, *Anas platyrhynchos platyrhynchos* Linnaeus of both sexes in illustration. From what may be described as an average normal drake, and an average normal duck, the full range of variation from the pure white to the melanistic mutation and the so-called "Cayuja" type Mallard is shown.

In a paper Sage (1955) suggests that the type of Mallard in which there is a general darkening of the plumage, the under parts of which vary from a rather dark bay to a richer somewhat chestnut colour, results from hybridisation with *A. clypeata* Linnaeus. This condition is often linked with the white chin spot and the white patch on the breast, both variable in extent as we have shown in our recent paper (1961 *loc. cit.*). We have now examined numerous individuals showing these characters and find ourselves unable to subscribe to the suggestion that these are hybrid *A. p. platyrhynchos* x *A. clypeata*. In our paper referred to above, the same incipient mutation is shown in the plate depicting a drake and duck of *Aix galericulata*, while we have a drake (wild shot) of what is apparently a hybrid between *A. p. platyrhynchos* and *Cairina moschata* which shows a similar combination of characters associated with frank melanism.

Are we then, on Sage's interpretation, to assume that in these quoted cases there is *A. clypeata* blood to account for the variable white marking at the root of the neck? We think not, and regard this special type of variation as due to an excess of melanin and the white breast markings as due to variable albinistic patterning referred to in our previous communication.

Probably the only other species of which a sufficiency of material exists and in which a similar gradation of characters of this nature could be demonstrated is the covert pheasant, *Phasianus colchicus* Linnaeus, a species which, like the Mallard, has been subjected to the same selective pressures under domestication and semi-domestication by man.

It is significant that symmetrical white primaries occur constantly in the chicks of the melanistic mutant pheasant, *P. c.* var "*tenebrosus*" in the first definitive plumage, as well as albinism of the head and neck. A similar mutation is found sporadically also in the juvenile plumage of some otherwise normally-coloured birds of this species.

Further instances can be seen in the many varities of the domesticated pigeon where, for example, in the Fan-tail there is a pure white as well as a wholly black variety, while, of course, many rather nondescript varieties frequently show symmetrical white primaries.

It has already been stated that albescence, as well as, doubtless, many other mutations depend upon the recombination of recessive genes giving rise to recessive dominance. This, of course, explains the genetic mechanism involved, but does not in any way account for the very widespread prevalence of albinism in the animal kingdom.

We feel that in view of this overall prevalence the phenomenon must depend upon some deep and fundamental cause. Albescence *per se* cannot be regarded as a pathological state for reasons already given.

While of course speculative, we would suggest that albinistic patterns, and probably also some of the other heterochroisms are atavistic in origin. It is, in our view, most probable that all early forms of life were self-coloured and that patterning came in at a much later stage in the evolution of all species. A curious structural alteration is associated in the Water Hen, *Gallinula chloropus* (Linnaeus) as recorded by Fitzherbert-Brockholes (1885), Stevenson (1885) and Forrest (1901) and recently in a Jay, *Garrulus glandarius glandarius* Linnaeus, by one of us (J.M.H., 1951) in connection with atavistic characters. These so-called ''hairy albescents'' show a primitive type of feather structure in which the intricate interlocking mechanism of barbs, barbules and hooklets is lacking, the plumage in consequence being hair-like, loose and soft. These cases lend further support to the suggestion that albinism is basically atavistic.

That this curious alteration in feather structure is inherent possibly in many species, though only a rare mutation in nature, would seem proved by the production by selective breeding of ''frizzled'' or ''silky'' mutants in both poultry and canaries.

Intensive in-breeding and similar factors operating in the wild would result in setting this process of patterning in reverse, as we believe we have shown in the Mallard series in illustration of this and our previous paper (1961 *loc. cit.*) already referred to.

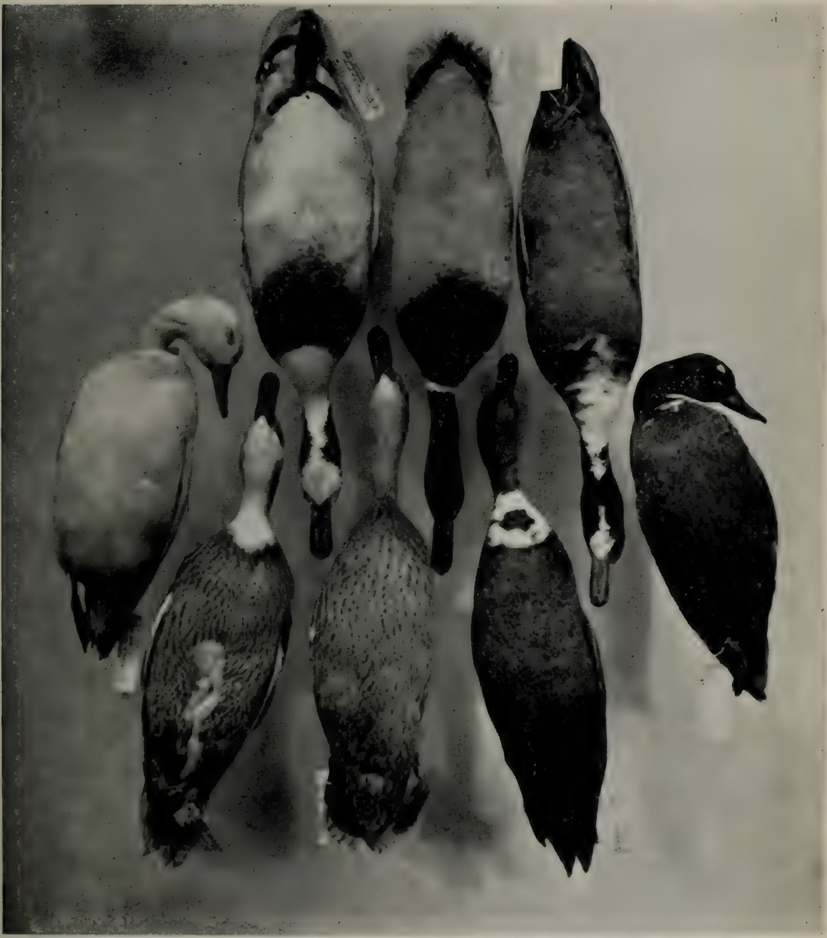
In conclusion we would suggest that this phenomenon as seen in the Mallard is worthy of specialised and detailed genetic analysis. Ecologically the Mallard is successful equally as a coastal and inland species. In its long evolutionary history there may have been stages when it was self-coloured. From this, in an aquatic habitat, it may well have developed any of the well known and varied varieties including both a white and a melanistic form before acquiring by suffusion the pattern and morphology as we know it to-day, for as already stated, black species, contrastingly pied species and white forms can all survive equally successfully in such a habitat.

In this connection we would suggest that the Black Duck, *Anas sparsa* species complex, and the Hawaiian Duck, *A. p. wyvilliana* all represent forms which have evolved from the melanistic phase of the Mallard.

On this basis it is possible to offer a broad explanation of the different colour aberrations, particularly albinistic and melanistic varieties, to which the Mallard is subject, and indeed similar mutations in other species might well be strictly comparable on the premise that in evolution self-colour almost certainly preceded patterning.

The virtually universal prevalence of such discontinuities throughout nature supports the hypothesis that the phenomena discussed are basically fundamental in origin and are to be regarded as reversions to less specialised ancestral types. That they are discontinuities is in itself significant and evidence that such are retrograde and that they do not represent progressive evolution.

It is clear that in so far as depigmentation is concerned there is ample experimental evidence of its production and reversal by manipulation of the diet in respect of the lysine content as well as by physical agents. Since a fractional amount of lysine is vital to normal pigmentation and growth, a very sensitive balance is demonstrated.



Range of variation in Mallard from the average normal drake and duck to albinism and melanism.

In work previously published by one of us (J.M.H., 1957. *loc. cit.*) on similar white wing-barring in corvines, in-breeding was advanced as probably causative, and it is of course well known that in-breeding favours mutation, while the relationship between a possible lysine deficiency and white wing-barring in birds living free remains obscure. As carrion feeders one would have thought that corvines would be the last to suffer from a lysine deficiency as a cause of white wing-barring since that substance results from the decomposition of proteins which constitutes a large part of the dietary of crows.

SUMMARY

In this paper we have considered the problems and implications of albinism and melanism in birds.

A broad classification of albinism is given and a sharp distinction is drawn between haphazard mosaic albinism and symmetrical albinistic patterning; also between the true and pathological albino and the white, but nevertheless virile and otherwise normal variant. Island, cave and traumatic albinism are discussed as also the depigmentation associated with lack of certain biochemical factors.

Many instances of albinism and melanism are regarded as atavistic states, and white and black plumages in birds are regarded as originating from such in response to natural selection. Symmetrical albinistic patterning is also regarded as atavistic in origin and as derived from self-coloured atavistic forms. The association of a structural alteration in feathers in the presence of albinism is noted.

The swing from pure white to black individuals in the Mallard is demonstrated by specimens and certain normally black species are regarded as the result of evolution from early melanistic phases.

It is suggested that contrasting colour phases can coexist in an aquatic or coastal habitat equally successfully and that this circumstance finds convincing support in the diametrically opposed phases of various species found coexisting in such environment.

Natural selection acts far more stringently in terrestrial habitats, as is evident by the very restricted distribution of certain species found only on certain soils and in cases where the melanism has little, if any, bearing on sexual dimorphism.

The principles involved postulate that self-colouring, including possibly total absence of colour, i.e. a white phase preceded the suffusion of pattern in all early forms of life, a speculative surmise which finds support in the widespread prevalence of albinism, not only in the vertebrate but also in the invertebrate animal kingdom.

References:

Harrison, James M., 1957. The White wing-barring and other variants in the Carrion-Crow and Rook. *Bull. B.O.C.* 77, 84–85.

Harrison, James M., 1957. Significant Pattern Variations in European Corvidae, *Ibid.* 131–133.

Harrison, James M. and Jeffery G., 1961. Albinistic patterning in the Mallard, Muscovy, Mandarin and Salvadori's Ducks. *Bull. B.O.C.* 81, 168–172.

Disney, H. J., de S., Lofts, B., and Marshall, A. J. 1961. An experimental study of the internal rhythm of reproduction in the Red-billed Dioch, *Quelea quelea* by means of photo stimulation, with a note on melanism induced in captivity. *P.Z.S., London.* 136. 1, 128.

Lofts, B., 1961. Melanism in Captive Weaver Finches, (*Quelea quelea*) *Nature.* 2nd September. No. 4792.

Deane, C. D., 1954. *Handbook of the Birds of Northern Ireland.*

Fritz, J. C., Hooper, J. H., Halpin, J. L., and Moore, H. F., 1946. Failure of Feather Pigmentation in Bronze Poults due to Lysine Deficiency. *Jnl. of Nutrition.* 31, 387–396.

Vohra, P. and Kratzer F. H., (1956). Graying of Hair in Rats Fed a Ration Deficient in Lysine. *Science*, 7th Dec. 124, 1145.

Kratzer, F. H., Williams, D. E., and Marshall, B., (1950). *Poultry Science.* 29, 285.

Harrison, David L., 1957. A Remarkable Pied Common Shrew. *The Naturalist*, July—September. 92.

Harrison, David L., 1961. Notes on Southern and East African Bats. On a Tomb Bat, *Taphozous perforatus* E. Geoffroy 1818, new to Tanganyika, and Notes on a mutant *Scotophilus* from Southern Rhodesia. *Durb. Mus. Nov.* VI. Pt. 12, 149. Nov. 1961.

Duerst, U., 1926. *Stang-Wirt's Tierheilkunde und Tierzucht*, I. 137.

Schultz, W., 1918. Verstekte Erbfactoren der Albinos für Farbung beim Russenkaninchen und rein somatisch zur Wirkung gebracht. *Zeitschr. f. ind. Abstamm. und Vererbungslehre.* XX.

Noorduijn, 1905. *Die Farben und Gestalts-Kanarien.* Magdeburg.
Pearl, R. and Boring, A. M., 1914. Some physiological observations regarding plumage patterns. *Science* N.S. XXXIX., 995.
Krizenecky, J., 1930. Ueber traumatischen Albinismus beim Geflugel. *Archiv. f. Geflugelkunde*, Jahrg 4, 5, 169–177.
Nero, R. W. 1960. Additional Notes on the Plumage of the Red-winged Blackbird. *Auk*, 77, 289–305.
Fox, H. Munro and Vevers, G., 1960. *The Nature of Animal Colours.*
Sage, B., 1955. Some further notes on plumage variations in the Mallard, *Anas platyrhynchos platyrhynchos* Linnaeus. *Bull. B.O.C.*, 75, 54–57.
Fitzherbert-Brockholes, W., 1885. Hairy variety of the Moorhen. *Zoologist* (3) 2, 321–332.
Stevenson, H., 1885. Ornithological Notes from Norfolk. *Zoologist* (3) 2, 31-32.
Forrest, H. E., 1901. Hairy-plumaged Moorhens. *Zoologist* (4) 5, 108.
Harrison, James M., 1951. Some Phylogenetic Trends in *Garrulus glandarius* (Linnaeus) and *Dendrocopos major* (Linnaeus). *Proc. Xth. Intern. Orn. Congr.* Uppsala, 168–172.
Reinig, W. F., 1927. Melanismus, Albinismus und Rufinismus. Leipzig.

Some recommendations for a revised check-list of the genera and species of grebes (Podicipitidae)

by K. E. L. Simmons

Received 1st November, 1961

The grebes form a small, well-defined group very suitable for taxonomic study along modern lines. Rather surprisingly, the only recent check-list (not quite complete) is that of Peters (1931), though Hellmayr and Conover (1948) dealt with the numerous American forms. The present note gives some recommendations for a revised list of the genera and species of the Podicipitidae, based on a recently completed survey of the biology and morphology of the family to be published in full elsewhere, together with a detailed discussion of conclusions only mentioned or summarized briefly here. I would be most grateful for any comments on, or criticisms of this preliminary statement from interested workers, either with reference to the key problem of the biological aspects of the proposed classification or to its purely nomenclatural side.

The basic work on skins was done in the National Collection at the Bird Room of the British Museum (Natural History) by kind permission of the Director. I am indebted to the staff of the Bird Room for facilities.

PETERS' (1931) ARRANGEMENT

Peters (1931) listed thirty-nine forms which he arranged in five genera and eighteen full species. His arrangement may be summarized as follows:

Genus POLIOCEPHALUS. Subgenus TACHYBAPTUS.
Species: (1) *P. ruficollis* (ten races); (2) *P. pelzelnii* (monotypic) (3) *P. dominicus* (three races).

Subgenus POLIOCEPHALUS.
Species: (1) *P. rufopectus* (monotypic); (2) *P. poliocephalus* (two races).

Genus COLYMBUS.
Species: (1) *C. rolland* (monotypic); (2) *C. chilensis* (monotypic); (3) *C. occipitalis* (two races); (4) *C. taczanowskii* (monotypic); (5) *C. auritus* (monotypic); (6) *C. nigricollis* (three races); (7) *C. cristatus* (four races); (8) *C. grisegena* (two races).

Genus AECHMOPHORUS
Species: (1) *A. occidentalis* (monotypic); (2) *A. major* (monotypic).

Genus CENTROPELMA
Species: (1) *C. micropterum* (monotypic).

Genus PODILYMBUS
Species: (1) *P. podiceps* (three races); (2) *P. gigas* (monotypic).

SOME SUBSEQUENT TRENDS

Hellmayr and Conover (1948) arranged the New World grebes very much as Peters had done, except that (1) *Poliocephalus dominicus* (of Peters) was placed in the genus *Colymbus*, and (2) the monotypic species *Colymbus rolland* and *C. chilensis* (of Peters) were merged as *C. rolland* (two races). Other changes below the generic level, subsequent to Peters' list, included: (1) the description by Delacour (1933) of a new monotypic species of dabchick from Madagascar (*Podiceps rufolavatus*); (2) the separation of *P. novaehollandiae* from *P. ruficollis*, as the two had been found to occur together on some Australasian islands (see Mayr 1943); (3) the separation of New and Old World forms of *C. auritus* (Parkes 1952); (4) the description of a new and very distinctive race of *C. nigricollis* (under the name *C. caspicus andinus*) from the eastern Andes of northern Colombia (de Schauensee 1959). Had these facts been known to Peters, his probable course of action may have been: (1) to insert *P. novaehollandiae* (polytypic) and *P. rufolavatus* as full species between *P. ruficollis* and *P. pelzelnii;* (2) to treat *C. auritus* trinomially, and (3) to insert *C. andinus* as a full, monotypic species near *C. nigricollis*.

At the generic level, subsequent to Peters' list, there have been differences of opinion as to the status of *Poliocephalus* (of Peters), most modern authors tending to merge this in *Colymbus* (of Peters), either totally, with no subgeneric divisions, or as the subgenus *Poliocephalus* including, of course, *P. poliocephalus* (the type species) and its ally *P. rufopectus*. The subgenus *Tachybaptus* (of Peters) has tended to disappear entirely. The New World genera *Centropelma*, *Aechmophorus* and *Podilymbus* have been almost unanimously upheld, though *A. major* has been removed into *Colymbus* by Wetmore and Parkes (1954), a course approved by Storer (1960).

Another important, if purely clerical advance has been the ruling of the International Commission on Zoological Nomenclature (1956) on the *Colymbus* versus *Podiceps* controversy. As a result, the generic name *Colymbus* Linnaeus, 1758, has been declared indeterminate and suppressed in favour of *Podiceps* Latham, 1787. The latter name will be used throughout the rest of this note.

SOME COMMENTS ON A PROPOSED NEW ARRANGEMENT

My own survey of the grebes has been based primarily on external characters, chiefly head-ornamentation, but my knowledge of *Podiceps cristatus* in the wild (Simmons 1954–59 and unpublished) and of the literature of grebe behaviour and biology in general (such as is available) has been used as a check.

As I see it, the main trends in the evolution of grebes include the following:

(1) An increase in the effectiveness of head-ornamentation and pattern for visual display (including nocturnal display), by elaboration (growths such as crests, tippets, auricular fans, tufts and patches) and/or an increase in contrast between components (bill and gape marks, facial discs, etc.);

(2) A tendency towards larger size;

(3) Specialization towards a diet largely of fish;

(4) A tendency towards colonial nesting.

Bearing in mind these probable trends, and also taking into consideration taxonomic convenience and allowing for uncertainty and decided gaps in knowledge, I propose to classify the grebes in three genera, eighteen full species (both monotypic and polytypic) and three semispecies. As the latter must be treated binomially, this is in effect, from the point of view of nomenclature, equivalent to recognising twenty-one species. I have not used subgeneric names but thought it safer at present, in the case of the genus *Podiceps*, to arrange the birds in informal species groups and sub-groups (see, for example, Goodwin 1959). Later research may permit the elevation of such groups to formal subgeneric or even generic status. It might eventually prove possible to recognize six genera, each genus representing a different trend in some or all of the various directions taken in grebe evolution.

Podilymbus and Aechmophorus

The modern trend in taxonomy has been away from small genera, especially monotypic ones. In a small group such as the grebes, however, small genera would seem to be justified. Thus, though monotypic or virtually so, both the genus *Podilymbus* and the genus *Aechmophorus* are distinctive in both structure and behaviour and separable from the other grebes and each other. There is evidence that the pied-billed grebes (*Podilymbus*) are the most ''primitive'' (i.e. nearer in many characters to ancestral grebes) and the Western Grebe (*Aechmophorus*) the most ''advanced''. The two genera are best kept, therefore, at the beginning and end of the classification respectively. I agree with the authors mentioned earlier that the Great Grebe, *Podiceps major*, does not belong in the genus *Aechmophorus* (see further under *Podiceps* below).

Centropelma

The monotypic genus *Centropelma* was raised by Sclater and Salvin (1869) for the peculiar grebe *Podiceps micropterus* Gould, 1868, confined to the Titicaca basin of South America. In my opinion, this genus cannot be maintained because: (1) its supposed diagnostic characters are found in other grebes, and (2) its closest relative is clearly *Podiceps chilensis*, widespread in South America from Tierra del Fuego to southern Brazil and eastern Peru. I have, therefore, returned the Short-winged Grebe to the genus *Podiceps* in which Gould originally placed it (see further under *Podiceps* below).

Tachybaptus and Poliocephalus

A revision of the small grebes allocated by Peters (1931) to the genus *Poliocephalus* is overdue. In the first place, his sub-genus *Tachybaptus* is probably not a wholly monophyletic group for *Podiceps dominicus* does not appear to belong there: it is a New World form, whereas *P. ruficollis* and its allies are Old World, and its plumage is very different (see also Storer 1960). Nor does there seem good reason to combine the true dabchicks with the two hoary-headed grebes, *P. poliocephalus* and *P. rufopectus*, of the subgenus *Poliocephalus*. These two seem to be much closer to *P. occipitalis* and its allies from South America.

I have retained all these small grebes in the genus *Podiceps* for the time being, placing *P. ruficollis* and its allies in one species group, *P. dominicus* by itself in another, and transferring the two *Poliocephalus* grebes to the species group containing the typical ornamented grebes (see further under *Podiceps* below). If the latter regrouping is acceptable, the name *Poliocephalus* will thus not be available in future for the Old World dabchicks. The affinities of *P. dominicus* are uncertain. Further work may indicate that it should be placed in a monotypic genus of its own, following a course already favoured for the other peculiar American grebes of the genera *Podilymbus* and *Aechmophorus*. Should this solution be thought to be the correct one, then the true dabchicks could also be separated from *Podiceps* as the genus *Sylbeocyclus* Macgillivray, 1842 (which has priority over *Tachybaptus* Reichenbach, 1853, used by Peters 1931). However, until the status of *P. dominicus* is certain, it seems best to leave all these small grebes in the genus *Podiceps*.

Podiceps

This genus raises many problems, some of which have already been mentioned. The modern tendency (followed here) has been to place the majority of the grebes in *Podiceps* and this gives an impression of unbalance to the classification of the Podicipitidae. Yet the maintenance of a large genus *Podiceps* seems to be the best course at the present state of knowledge, for clearly this genus represents the major adaptive radiation of the grebes. I have divided it into four species groups, resisting the temptation of erecting further genera or subgenera, which would give a false impression of finality to the arrangenemt. The groups themselves seem definite enough but their inter-relations are not yet fully clear. The problem of *P. dominicus* has already been mentioned. A similar doubt exists as to the affinities of the two grey-faced grebes, *P. major* and *P. grisegena*. The latter is almost traditionally associated in various works with *P. cristatus* and its allies. However, the head-ornamentation of both *P. major* and *P. grisegena* is distinctive and apparently represents a trend similar to that in the true dabchicks (especially *P. rufolavatus* and *P. pelxelnii*) rather than that in the typical ornamented grebes. If the dabchicks and *P. dominicus* were removed from *Podiceps*, then it might be necessary also to remove *P. major* and *P. grisegena* to form a third genus *Pedetaithya* Kaup, 1829, leaving the typical ornamented grebes in sole possession of a reduced genus *Podiceps* (of which *P. cristatus* is the type species). The latter grebes are a well-knit group phylogenetically, falling into two main sub-groups, with *P. auritus* and *P. cristatus* both standing somewhat apart. *P. occipitalis* and *P. taczanowskii* and *P. nigricollis* and *P. andinus* are obviously closely related, having many similarities in morphology and behaviour which are shared, at least to some extent, by the two hoary-headed grebes *P. poliocephalus* and *P. rufopectus*. The two latter may well belong within the same sub-group as *P. occipitalis* and its allies but, until more information is available, I think it safer to leave them as a separate sub-group next to the other. I am convinced that *P. micropterus* belongs to the same species group as *P. chilensis* and *P. rolland*, representing an earlier colonization of Lake Titicaca by *P. chilensis*, or its immediate ancestor, just as *P. rolland* represents a more recent colonization of the Falkland Islands by *P. chilensis* stock. Both *P. micropterus* and *P. rolland* have increased appreciably in size but, while the latter has retained a nuptial plumage identical with that of *P. chilensis* and remained capable of flight (at least when not at maximum weight), *P. micropterus* has become flightless and developed a nuptial plumage that is merely an elaboration of the eclipse plumage of *P. chilensis*.

A final point. *P. nigricollis* has sometimes been placed in the genus *Proctopus* Kaup, 1829, by writers on Ethiopian birds (e.g. Roberts 1919). I can see no justification for this step. The type-species of *Proctopus* is, by monotypy, *P. auritus* and there seems no good reason for supposing there to be a closer relationship between *P. nigricollis* and *P. auritus* than between either and *P. cristatus*, the type species of the genus *Podiceps*. If the genus *Proctopus* were to be upheld, then to be consistent, one would have to erect a genus for practically every other species of grebe. (N.B. The genus *Dytes* Kaup, 1829, has page priority over the genus *Proctopus* Kaup, 1829; the type species of *Dytes* is also *P. auritus*.)

Pairs of very closely related forms

Within the Podicipitidae, there are a number of very closely related forms. The following are sympatric over at least part of the range:

(1) *Podiceps ruficollis* and *P. novaehollandiae;*
(2) *P. ruficollis* and *P. rufolavatus* (though the former is rare on Madagascar and there seems no evidence that the two forms ever actually meet);
(3) *P. rufolavatus* and *P. pelzelnii* (again, there is no evidence, so far as I am aware, that the two forms ever actually meet on Madagascar);
(4) *P. occipitalis* and *P. taczanowskii*.

The following pairs are entirely allopatric:

(1) *P. nigricollis* and *P. andinus;*
(2) *P. chilensis* and *P. rolland;*
(3) *Podilymbus podiceps* and *P. gigas*.

There is no choice, of course, but to treat each member of the sympatric pair as a full species, the two forming a ''species-pair''. In the case of *Podiceps ruficollis* and *P. rufolavatus* and of *P. rufolavatus* and *P. pelzelnii*, the forms show noticeable morphological differences from each other. With the siblings *P. ruficollis* and *P. novaehollandiae* and *P. occipitalis* and *P. taczanowskii*, however, there is much closer morphological similarity so that, if they were allopatric instead of sympatric, a decided problem of whether or not to combine them in single species would be posed. This fact should be taken into account, therefore, in assessing the status of the allopatric pairs. In each case, there is a widespread, polytypic species (*P. nigricollis*, *P. chilensis* and *Podilymbus podiceps*) and a geographically isolated form (*Podiceps andinus*, *P. rolland* and *Podilymbus gigas*), clearly the representative of the other but distinct to some extent in plumage and/or structure. My first inclination was to lump them into single species and such a procedure would certainly be followed by many modern taxonomists. However, the isolate of the allopatric pair is at least a developing species and should not, in my opinion, be submerged taxonomically by being treated as a mere race of the wider ranging form. The small differences within the latter are transcended by the greater difference between it and the isolate in every case.

The geographically isolated forms are "semispecies" in the sense of Mayr (1940). They have to be treated binomially. For this reason, the category is rather unsatisfactory, for it is impossible to characterize semispecies within our present system of nomenclature, so they emerge in practice as binomial forms indistinguishable from monotypic, but undoubtedly full species. Further, forms treated as semispecies are likely to differ in status; some may be full species, others not—we are just in no position to know. Nevertheless, the category of the semispecies for very distinctive forms is preferable to terming these forms subspecies or to raise them unequivocally to the status of full species.

Superspecies

A semispecies and its related, wider ranging form constitute at least a simple superspecies of the first stage of differentiation. As discussed above, there are three such incipient superspecies within the Podicipitidae. In addition, some better defined superspecies may be recognized:

(1) *Podiceps major* and *P. grisegena;*

(2) *P. poliocephalus* and *P. rufopectus;*

(3) *P. nigricollis/andinus* with both *P. occipitalis* and *P. taczanowskii* (the situation here being somewhat complicated by the fact that the two latter species are sympatric).

A REVISED CHECK-LIST OF THE GREBES

Notes:

(1) Semispecies have been bracketted with their related, wider ranging form.

(2) Superspecies are designated by the names of the terminal species.

(3) Forms marked by an asterisk are full, polytypic species; those unmarked are full, monotypic species, while semispecies are distinguished by italics.

(4) In the case of the genus *Podiceps*, I have indicated in brackets the generic or subgeneric name available to any species group or subgroup, together with the type species, in case that group be eventu-

ally given formal nomenclatural status (no name seems available for *P. dominicus*).

(5) The range given under each form is only a rough guide to the main area(s) of distribution.

Genus PODILYMBUS Lesson, 1831

*P. podiceps (Linnaeus, 1758)
North and South America.
P. gigas Griscom, 1929
Lake Atitlan, Guatemala.

Genus PODICEPS Latham, 1787

Species group A (Sylbeocyclus Macgillivray, 1842: P. ruficollis)

*P. ruficollis (Pallas, 1764)
Europe, Asia, Africa, some Australasian islands.
*P. novaehollandiae Stephens, 1826
Tasmania, Australia, some Australasian islands.
P. rufolavatus Delacour, 1933
Madagascar (confined to the Lake Alaotra area).
P. pelzelnii Hartlaub, 1861
Madagascar generally.

Species group B

*P. dominicus (Linnaeus, 1766)
Southern North America, South America.

Species group C (Pedetaithya Kaup, 1829: P. grisegena)

Superspecies P. major-grisegena
P. major (Boddaert, 1783)
Southern half of South America.
*P. grisegena (Boddaert, 1783)
North America, Europe, Asia.

Species group D (Podiceps Latham, 1787: P. cristatus)

Sub-group 1 (Rollandia Bonaparte, 1853: P. rolland)

*P. chilensis Lesson, 1828
Southern half of South America (north to eastern Peru).
P. rolland Quoy & Gaimard, 1824
Falkland Islands.
P. micropterus Gould, 1868
Lake Titicaca basin, Peru and Bolivia.

Sub-group 2 (Dytes Kaup, 1829: P. auritus)

*P. auritus (Linnaeus, 1758)
North America, Europe, Asia.

Sub-group 3 (Poliocephalus Selby, 1840: P. poliocephalus)

Superspecies P. poliocephalus-rufopectus
*P. poliocephalus Jardine & Selby, 1827
Tasmania, Australia.

P. rufopectus Gray, 1843
New Zealand.

Sub-group 4 (Calipareus Gray, 1871: P. occipitalis)
Superspecies P. occipitalis-nigricollis
*P. occipitalis Garnot, 1826
Southern South America (north to southern Colombia), Falkland Islands.
P. taczanowskii Berlepsch & Stolzmann, 1894
Lake Junin, Peru.
*P. nigricollis Brehm, 1831
North America, Europe, Asia, Africa.
P. andinus (de Schauensee, 1959)
Eastern Andes of northern Colombia.

Sub-group 5 (Podiceps Latham, 1787: P. cristatus)
*P. cristatus (Linnaeus, 1758)
Europe, Asia, Africa, Australia, New Zealand.

Genus AECHMOPHORUS Coues, 1862

A. occidentalis (Lawrence, 1858)
North America.

References:

Delacour, J. 1933. *L'oiseau* 3: 4–7.
Goodwin, D. 1959. *Bull. Brit. Mus. (Nat. Hist.)* 6 (1).
Gould, J. 1868. *Proc. Zool. Soc. London:* 220–221.
Hellmayr, C. E. and Conover, B. 1948. *Pub. Field Mus. Nat. Hist. (Zool. series)* 13, 1 (2).
International Commission on Zoological Nomenclature 1956. *Opinions and declarations* 13 (1): 1–46.
Peters, J. L. 1931. *Check-list of birds of the world*, 1. Cambridge (Mass.).
Mayr, E. 1940. *Amer. Nat.* 74: 249–278.
Mayr, E. 1943. *Emu* 43: 3–17.
Parkes, K. C. 1952. *Condor* 54: 314–315.
Roberts, A. 1919. *Ann. Transvaal Mus.* 6: 118.
de Schauensee, R. M. 1959. *Proc. Acad. Nat. Sci. Philadelphia* 111: 55.
Sclater, P. L. and Salvin, O. 1869. *Exotic ornithology, containing figures and descriptions of new or rare species of American birds.* London.
Simmons, K. E. L. 1954. *Bird Study* 1: 53–56.
Simmons, K. E. L. 1955. Studies on Great Crested Grebes. *Avicult. Mag.*, London.
Simmons, K. E. L. 1959. In Bannerman's *Birds of the British Isles* 8: 215–223.
Storer, R. W. 1960. *Proc. XII Internat. Orn. Cong. Helsinki* 1958: 695–707.
Wetmore, A. and Parkes, K. C. 1954. *J. Washington Acad. Sci.* 44: 126–127.

31 AUG 1962
PURCHASED

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 5*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 5*s*., payable to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1962

18th September, 16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

BRITISH MUSEUM
NATURAL HISTORY

- 9 OCT 1962

PURCHASED

Volume 82
No. 7

October
1962

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

BRITISH MUSEUM NATURAL HISTORY

Volume 82
Number 7
Published: 8th October, 1962

The sixth hundredth meeting of the Club was held at the Rembrandt Hotel, London on 18th September, 1962.

Chairman: Major-General C. B. Wainwright.

Members present: 34; Guests: 18; Guests of the Club: Mr. and Mrs. Vincent Serventy; Total: 54.

The Chairman welcomed Dr. and Mrs. Falla from New Zealand, Mr. and Mrs. Rowan from South Africa and Mr. and Mrs. Serventy from Australia. Mr. Vincent Serventy then spoke on

Australian land and sea birds

illustrating his most interesting address with colour slides and a tape recording of the voice of the Noisy Scrub-bird, thought to be extinct, but rediscovered in 1961. A summary follows:—

Australia is a continent with its 3,000,000 square miles spread over three main physical divisions; a very ancient western plateau, a geologically younger central basin and an eastern highlands, whose present elevation dates from the late Tertiary and whose height varies between 2,000–7,000 feet. The climate is such that about one third of the continent is desert, one third semi-arid and the rest suitable for closer human settlement. Of the 650 birds, about 80 are visitors, about 40 seabirds and about 530 land and freshwater species. Some of the interesting groups and species discussed included the emus, mound builders, parrots and cockatoos and the honeyeaters. The breeding seasons in land birds are as follows:—spring-breeding in the southern areas and coastlines where winter rainfall is the rule and also on the east coast; summer breeding in the north, where monsoonal summer rain occurs; and irregular breeding in other areas where nesting must wait on suitable rains. Among seabirds there are all-the-year-round breeders like Caspian Terns in the north, autumn breeders and spring breeders e.g. northern gannets; some that breed only in the autumn, e.g. pelicans; some that breed only in the spring, e.g. Fairy Tern. The Silver Gull is interesting on the west coast where there are islands on which both autumn and spring breeding groups occur, but whether these are separate populations or double breeders is not known.

The re-discovery of the Noisy Scrub-bird was the highlight of 1961. Mr. Harley Webster managed, after patient search, to find and obtain tape-recordings of the call of this bird, last seen in 1889 and previously believed by many ornithologists to be extinct. From his investigation of habitats it seems that this is a case where increased numbers of bush fires destroyed many breeding populations, leaving pockets of birds only in more isolated areas. A slow build up of population in these refuges eventually allowed a spillover of birds into other areas, thus leading to their discovery.

The Scrub-bird re-discovery highlights the interest of the Australian scene to the amateur ornithologist, where work of importance can be done by the keen worker.

Acknowledgement:

The film shown at the May meeting of the Club was generously lent by Messrs. Colin Robinson and G. R. Cunningham-Van Someren. A short film of a captive Shoebill (*Balaeniceps rex*), also shown at this meeting, was kindly lent by Mr. J. M. Pearson, the sound recording accompanying it being by Mr. Myles North.

The south-western races of *Eremomela icteropygialis* (Lafresnaye)

by J. M. WINTERBOTTOM

Received 30th January, 1962

Considerable controversy has arisen recently over the south-western races of *Eremomela icteropygialis* (Lafresnaye), different views on some aspects of the problem being expressed by Macdonald (1957), Clancey (1959, 1962) and White (1961). It seemed therefore worth while to review the whole matter with the aid of the collections in the South Africa, Durban, East London and Transvaal Museums and the National Museum of Southern Rhodesia, Bulawayo. I am much endebted to the Directors of these last four Museums and to Messrs. O. P. M. Prozesky and M. P. Stuart Irwin for the loan of material; and I must also thank Mr. P. A. Clancey for allowing me to see his 1962 paper before publication.

Before tackling the nomenclatorial problem, it seemed best first to determine how many races were involved. Five have been described from within South African limits, *icteropygialis* (Lafresnaye), 1839, said to be from the Orange River; *polioxantha* Sharpe, 1883, from Swaziland; *sharpei* Reichenow, 1905, from Windhoek; *saturatior* Ogilvie-Grant, 1910, from Deelfontein; and *perimacha* Oberholser, 1920, from the Asbestos Mountains, Griqualand West.

Of these, we can dismiss *polioxantha* in a few lines. It is quite distinct from the other southern populations of the species, the belly being a much deeper and brighter yellow. It ranges from Zululand, through Swaziland, the eastern Transvaal and Southern Rhodesia to north-east Bechuanaland Protectorate (Makarikari Pan and 99 miles south of Francistown) and northwards beyond our limits to Northern Rhodesia, southern Tanganyika, Nyasaland and Portugese East Africa (White, 1961).

The controversy exists about the other four races. Clancey (1959, 1962) believes that *perimacha* is synonymous with the type race and that the birds of northern S.W. Africa constitute the paler *sharpei*. White (1961) regards *sharpei* as a synonym of *icteropygialis;* he does not discuss topotypical *perimacha* but uses this name for Bechuanaland birds, which implies that they are the same as those of Griqualand West, whereas Clancey (1962) considers them the same as those from northern S. W. Africa. Clancey (1959) also suggests that if western Orange Free State and Transvaal birds (for which the name *perimacha* has been widely used in the past) are actually distinct from *icteropygialis*, they will require a new name.

My first task was to find out how many races there are, before deciding what they ought to be called. For this, I had at my disposal 161 skins and, leaving aside five skins which obviously belonged to very distinct north-eastern *polioxantha*, the rest of the material fell very naturally into three groups, in which the breast grew darker and the belly duller as one proceeded from north to south (and east). The only serious gap in the series was for the Orange Free State, for which only three skins, one from Boshoff and the other two from Glen, near Bloemfontein, were available.

The palest series was from northern South West Africa and most of Bechuanaland Protectorate; perceptibly darker were birds from southern South West Africa, most of Griqualand West and parts of the north-western Cape. In the area between Windhoek and Ghanzi both forms occurred—one Ghanzi bird, indeed, could well have been placed in the succeeding series.

This third series of still darker birds, came from the Karoo and I was unable to separate most of the Transvaal skins from it. Some birds from the area Barkly West-Kimberley-Fourteen Streams agreed with this dark race and others fitted equally well into the lighter series. The western Free State bird was on the whole better placed with the lighter series; the others with the darker skins.

Skins from the northern and eastern Transvaal (Nelspruit, Mokeetsi, Woodbush, Nylstroom) showed the influence of *perimacha* in being decidedly paler on the breast and richer on the belly than the other Transvaal birds.

It is clear from the foregoing that my findings agree with Clancey's, as far as these latter go, but there remain nomenclatorial problems.

A good deal of uncertainty surrounds the type specimen of *Eremomela icteropygialis*, as was first pointed out by Macdonald (1957), who says: "there is inscribed on its label, in Lafresnaye's handwriting, the words 'des Elephants', which was crossed out and the words 'd'Orange' added. Lafresnaye in his description says, 'said to have come from the Orange River.' It is quite unlikely that the bird was taken on the Olifants River and it is doubtful if the species occurs along the Orange River anywhere much below Upington. The specimen was probably collected by Levaillant and it might easily have been taken from within the present known range of the species north of the Orange River, where Levaillant claims to have travelled." In other words, Macdonald believes that the type specimen came neither from the Olifants nor from the Orange, but from further north. The type was matched at Harvard against an Andersson skin from Otjimbingwe, which supports its northern origin as far as it goes, though in this connection I would agree with Clancey (1959) that comparison of such old skins to determine the subspecies is of very doubtful value.

Unfortunately, too, all the other arguments which Macdonald advanced to support his case are either doubtful or have since been shown to be incorrect, as follows:

(i) *Eremomela icteropygialis* does occur on the Olifants River (Winterbottom, 1958).

(ii) It also occurs on or close to the Orange River below Upington, where it has been found at Bladgrond (Clancey, 1959), at two places in the Richtersveld (Winterbottom & Courtenay-Latimer, 1961) and at Aughrabies Falls.

(iii) It is not certain whether Levaillant collected the skin or not.

(iv) Granted that he did, the evidence that he crossed the Orange River is not conclusive. Grant (1957) has argued the case in favour of it, adducing the evidence of the skins of *Agapornis roseicollis*, *Rhinopomastus cyanomelas*, *Motacilla aguimp*, *Pterocles bicinctus* and *Trachyphonus vaillantii* as proof. To this Forbes (1958) has replied: "It is permissible to wonder . . . whether the ranges in the 18th century of the five species named are known with such certainty in that still unfrequented territory that they can now be used to establish positively the extent of Le Vaillant's travels in the north."

The answer, of course, is they are not so known and cannot be so used. Of the five species named, *Pterocles bicinctus* has now been recorded south of the Orange at Kuboos, in the Richtersveld, and *Motacilla aguimp* on the Olifants and even near Cape Town. Although the others have not so far been recorded south of the river, it may be observed that the Social Weaver *Philetarius socius*, on which *Agapornis roseicollis* depends for nest sites, occurs as far south as north-western Carnarvon. I may also add that my Ms. list for the Kenhardt District, which covers most of the country south of the Orange River in the critical area, includes only 85 species altogether; and that for Prieska, the adjoining District to the east, only 57 (as against, e.g., 216 for the better-known Philipstown and 201 for Little Namaqualand), emphasising our scanty knowledge even today of the bird population of that area. Acocks (1953) has shown, too, that much of the present desert country in those parts was covered with a more luxuriant vegetation in the past. Another species hitherto supposed not to occur south of the Orange, *Merops hirundineus*, is now known to extend 60 miles further south (Winterbottom, 1960) and the same may well apply to some, at least, of the species under consideration.

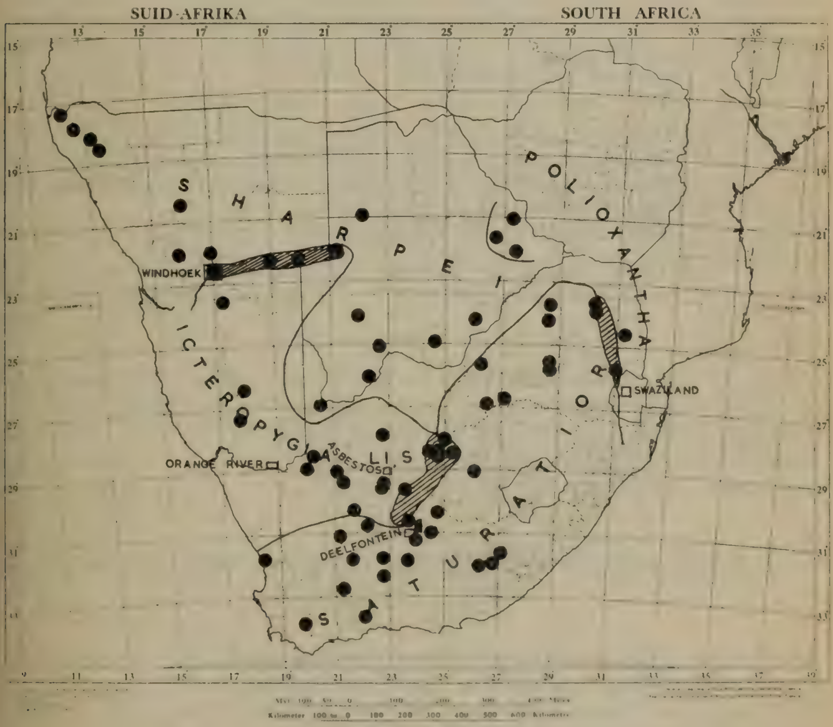
(v) Nobody claims that Levaillant reached as far north as Otjimbingwe and I agree with Clancey (1962) that the use of this place "as a sort of putative type locality of *E. i. icteropygialis*" serves only to confuse.

The upshot of all this is that we are now left with no external evidence worth considering as to the locality where the type of *Eremomela icteropygialis* was collected; and since Lafresnaye presumably had some reason for believing that it came from the Orange River, we must, I think, accept that as the type locality, as Clancey (1959) has advocated. White's note (1961) adds nothing new to the argument, except the statement that the emendation to the locality on the label of the type specimen was made by Lafresnaye himself, which Macdonald does not say. I would therefore summarise the position as I see it in respect of the South African races of this species as follows:

1. *Eremomela icteropygialis saturatior* O.–Grant
Eremomela saturatior Ogilvie–Grant, Bull. B.O.C., 25, 1910: 120—Deelfontein.

Breast darkish grey, belly pale yellow.

Range: The Karoo of the Cape Province, north, in the west, to about Van Wyk's Vlei and Merriman and thence across the Orange Free State to the Transvaal. Intergrades with *E. i. icteropygialis* at Van Wyk's Vlei, Merriman, the Kimberley area and the western Orange Free State; and with *E. i. polioxantha* in the north-eastern Transvaal from Nelspruit to Mokeetsi. We may note that the north-eastern boundary of the range of this race is close enough to the 65°F. isotherm to suggest that there is some correlation with temperature.



South-western subspecies of *Eremolema icteropygialis*

Each dot represents a locality from which one or more specimens have been examined. Type localities of named races, whether valid or not, are indicated by open squares and named.

Area of intergradation between races are hatched.

2. *Eremomela icteropygialis icteropygialis* (Lafres.)
Sylvietta icteropygialis Lafresnaye, Rev. Zool., 1839: 258—Orange River

Synonym: Eremomela griseoflava perimacha Oberholser, Proc. Biol. Soc. Wash., 33, 1920: Asbestos Mts.

Breast pale grey, belly somewhat brighter yellow than in *E. i. saturatior.*

Range: The Orange River basin from the Vaal confluence downstream, Gordonia, and most of Griqualand West, southern S. W. Africa. Intergrades with the next race between 22° and 23°S in South West Africa.

3. *Eremomela icteropygialis sharpei* Reichenow

Eremomela flaviventris sharpei Reichenow, Orn. Monatsb., 13, 1905: 25—Windhoek

Breast almost white; belly decidedly brighter than in *E. i. icteropygialis.*

Range: Northern South West Africa, the whole of Bechuanaland Protectorate except the north-east corner, and the Kalahari Gemsbok Park area of the northern Cape.

4. *Eremomela icteropygialis polioxantha* Sharpe

Eremomela polioxantha Sharpe, Cat. Bds. B.M., 7, 1883: 160—Swaziland.

Breast much as in *E. i. icteropygialis*, belly much richer yellow than in any of the preceding.

Range: as outlined in par. 3 above.

References:

Acocks, J. H. P. (1953), 'Veld Types of South Africa,' *Bot. Surv. S. Afr. Mem. No.* 28.

Clancey, P. A. (1959), 'Miscellaneous Taxonomic Notes on African Birds, XIII (h), *Durb. Mus. Novit.*, 5: 204–6 (1962), 'Comments on the Typical Race of *Eremomela icteropygialis* (Lafresnaye), *Bull. B.O.C.*, 82: 44–5.

Forbes, V. S. (1958), 'The Limits of Le Vaillant's Travels in South Africa,' *The Ostrich*, 29: 79–85.

Grant, C. H. B. (1957), 'Levaillant's Travels in South Africa,' *The Ostrich*, 28: 83–97.

Macdonald, J. D. (1957), *A Contribution to the Ornithology of Western South Africa.* London.

White, C. M. N. (1961), Notes on *Eremomela icteropygialis* (Lafresnaye), *Bull. B.O.C.*, 81: 90–2.

Winterbottom, J. M. (1958), 'Distribution of *Eremomela icteropygialis* Lafresnaye,' *Bull. B.O.C.*, 78: 132–3.

Winterbottom, J. M. (1960), 'Southern Limit of the Range of the Swallow-tailed Bee-eater *Merops hirundineus* Licht.,' *The Ostrich*, 31: 27.

Winterbottom, J. M. and Courtenay-Latimer, M. (1961), 'A List of the Birds of Little Namaqualand,' *S. Afr. Avif. Ser.*, 1.

A new name for *Bradypterus barratti major* (Roberts)

by S. A. Parker

Received 6th January, 1962

If both *Caffrillas barratti* (Sharpe) and *Dumeticola major* Brooks are placed in the genus *Bradypterus*, following Delacour (*Ibis*, 1942, p. 512), then the name *Bradypterus barratti major* (Roberts) becomes a junior secondary homonym. I therefore propose:—

Bradypterus barratti lysis, nom. nov. for *Caffrillas barratti major* Roberts, Ann. Transvaal Mus., viii, p. 234, 1922—Wakkerstroom, Transvaal.

= *Bradypterus barratti major*, not

Dumeticola major Brooks, *Journ. As. Soc. Bengal*, 41, p. 77, 1872—Kashmir = *Bradypterus major major.*

Watering of young in *Pterocles alchata*

by S. MARCHANT

Received 28th December, 1961

In a recent notice Marchant (*Bull. B.O.C.*, Vol. 81, pp. 134–141. 1961) described aspects of breeding in the sandgrouse *Pterocles alchata* and *P. senegallus* and in particular gave an account of what was presumed to be the watering of the young by the male parent in *P. senegallus*. During 1961 further opportunities were taken of observing these birds on their breeding grounds, about 20 km. nearer Baghdad than the area in which the observations were made in 1960.

On three occasions behaviour very similar to that already described for *P. senegallus* was seen with *P. alchata*. Briefly, this was as follows:—

21*st July*. 0615 hrs. Discovered a pair with two young which were later estimated to be about ten days old. Watched till 0720 when both adults flew away and young squatted. At 0806 ♀ returned: young got up and joined her without any abnormal behaviour. At 0813–14 ♂ returned and settled 5 m. from young: as he did so, ♀ flew away a short distance and young immediately ran to ♂. For about two minutes they remained with him, evidently thrusting their heads into his belly and flank feathers, which he seemed to spread and fluff out, though my view was partly obscured by thin, low vegetation. At 0816 both young walked away from ♂ and joined ♀. I immediately drove up from 150 m. where I had been watching, but as I got out of the car, the young flew off down wind for 50–100 m. When I caught one, it had no signs of dampness on its head. Perhaps it was not likely that there would be, even though only one to two minutes at most could have elapsed between the time that the young left the ♂ and I had caught one of them.

28*th July*. 0700 hrs. Discovered three adults (1 ♂, 2 ♀♀) with three young which were about three quarters grown and well able to fly. It was not clear which adults owned the young and matters were further confused by other single adults coming and going, but by 0720 one ♀ was left with the young and she left at 0722, leaving the young together and motionless. At 0731 two ♂♂ landed near the young and all three at once ran up to one male. He stood erect and the young nestled around and below him, with heads inwards, like a litter of suckling puppies. At one moment I could clearly see, from about 150 m., one young with its head against the male's legs and thighs. They separated at 0734, and wandered about feeding till the ♀ joined them at 0805.

4*th August*. 0615 hrs. Picked up a pair with three well-grown young of the same size as those watched on 28th July. Followed across desert for 1,500 metres till they joined a large flock of mixed adults and juveniles. The flock flew away at 0757 leaving the family behind, with a few other scattered individuals. The ♂ parent disappeared unseen about this time. At 0804 the young squatted and the accompanying ♀ ran on and also disappeared. At 0824 a pair flew close over the young, calling loudly. The young immediately rose and then settled with the adult pair 50 m. further away on a bare desert road, when two of them at once ran up and nestled under the male, the third waiting alone indifferently for a few moments and then joining in. This "litter of puppies" behaviour lasted for about one minute and then was broken up, all the birds walking off across the desert and feeding.

These observations seem to confirm beyond doubt the method by which these sandgrouse bring water to their young. I may add, however, that on 18th August, from 0800 to 1135 I watched a pair of *P. senegallus* with two young, no more than a week old and unable to fly. While I watched, the adults never left the young which surprised me because I had expected to see ''watering'' behaviour during this period. Presumably, then, if ''watering'' is performed daily, its time is more irregular than one would have imagined.

Remarks on the taxonomy of *Turdus nigrilorum* Reichenow and *Turdus saturatus* (Cabanis) in Southern British Cameroons

by William Serle

Received 29th January, 1962

Turdus nigrilorum was described by Reichenow (*Ber. Allgem. deutsch. orn. Ges. Marz* 1892), the type locality being Buea on the Cameroon Mountain at an altitude of 950 metres (about 3,100 feet). Reichenow compared his new form with *Turdus chiguancoides* Seebohm, and in his original description he mentioned the grey-brown flanks and the fulvous-brown axillaries of *nigrilorum*.

For a number of years opinion has been divided over the status of *T. nigrilorum*, some treating it as a full species and others treating it as conspecific with the wide ranging *Turdus libonyanus* (Smith) of which the representative in the area surrounding the Cameroon Mountain is *T. l. saturatus* (Cabanis).*

The type locality of *saturatus* is Duala, on the Cameroons coast and only twenty-five miles from the base of the Cameroon Mountain. The type specimen of *saturatus* is an extremely worn bird. The flanks are washed orange-chestnut and the axillaries and under wing-coverts are clear orange-chestnut.

In the hope of determining the relationship of *nigrilorum* and *saturatus* I collected a series of the two forms on the Cameroon Mountain and on the plain between the base of the mountain and the sea, at altitudes from sea level up to 9,500 ft. Comparing the two forms, in fresh adult plumage, in *nigrilorum* the upper parts are a shade darker as are the lores, and the middle of the throat and breast a shade greyer and less brown, but these are trifling differences. The only good character lies in the flanks, the axillaries and under wing-coverts. The orange-chestnut wash on the flanks of *saturatus* is absent in *nigrilorum* and the axillaries and under wing-coverts instead of being clear orange-chestnut are only tinged with orange-chestnut, and the outer under wing-coverts are hardly even so tinged.

On the character of the flanks, axillaries, and under wing-coverts the thrush of the upper slopes of the Cameroon Mountain is clearly *T. nigrilorum*, the thrush of the lowest slopes of the mountain and the adjacent coastal plain is *T. saturatus* and there is a fairly narrow altitudinal zone on the lower slopes of the mountain occupied by intermediates between *nigrilorum* and *saturatus*.

In the series collected by me the following are assigned to *T. nigrilorum*.

1 ♀; Saxenhof; 1,700′; Wing 109 mm.; Tail 77 mm.
1 ♀; above Mimbia; 3,300′; W. 114; T. 75.
1 ♂; above Buea; 3,400′; W. 111; T. 76.
1 ♂; 1 ♀; above Buea; 4,000′; W. 115, 109; T. 82, 74.
1 ♂; above Buea; 4,000′; juvenile.
2 ♀; above Buea; 4,500′; W. 104, 109; T. 74, 77.
1 ♀; above Buea 5,000′; W. 108; T. 75.
1 ♀; above Buea 5,500′; juvenile.
2 ♀; Mann's Spring; 7,400′; W. 109, 111; T. 76, 81.
1 ♀; above Buea; 9,500′; W. 109; T. 77.

The following are assigned to *T. saturatus*:—

6 ♂, 1 ♀; Victoria; sea level; ♂, W. 107; 110, 111, 111, 113, 115; T. 79, 79, 84, 84, 83, 82; ♀ juvenile.
1 ♂; Missellele; sea level; W. 112; T. 82.
1 ♂; Powo; 600′; W. 110; T. 79.
1 ♂; above Bota; 1,000′; W. 109; T. 77.
1 ♂, 2 ♀; near Ekona; 1,200′; W. 113, 108, 109; T. 83, 80, 77.
1 ♂, 1 ♀; near Ekona; 1,400′; W. 110, 106; T. 81, 77.
1 ♀; Bonikando, 2,100′; W. 107; T. 81.
1 ♀; above Saxenhof, 2,300′; W. 111; T. 80.

The following are intermediates nearer to *nigrilorum* than to *saturatus:*

2 ♂; near Saxenhof; 1,700′; W. 111, 112; T. 86, 82.
1 ♀; near Saxenhof; 2,000′; W. 107; T. 77.
1 ♂; Tole; 2,000′; W. 114; T. 82.
1 ♂; above Mimbia; 3,200′; W. 109; T. 80.

The following are intermediates nearer to *saturatus* than to *nigrilorum*:—

1 ♂; Ekona; 1,200′; W. 115; T. 81.
1 ♂; near Saxenhof; 1,700′; W. 113; T. 81.
1 ♀; near Saxenhof; 1,800′; W. 109; T. 76.
1 ♂; Lisoka; 1,900′; W. 117; T. 85.
1 ♂; above Bonikando; 2,900′; W. 112; T. 78.
1 ♂; above Buea; 3,500; W. 116; T. 82.

In brief, the specimens of *nigrilorum* were all collected at altitudes between 3,300′ and 9,500′ except one at 1,700′. The specimens of *saturatus* were all collected between sea level and 1,400′ except one at 2,100′ and one at 2,300′. The intermediates were all collected between 1,200′ and 2,000′ except one at 2,900′, one at 3,200′, and one at 3,500′.

The series shows that *T. nigrilorum* and *T. saturatus* are conspecific, being races of *T. libonyanus; nigrilorum* of the Cameroon Mountain being a montane representative of the species.

The altitudinal range of *T. nigrilorum*

Several of the Cameroon Mountain true montane forms occur as low as about the 1,700′ contour but no lower. Only exceptionally are any montane forms encountered below 1,700′. The dividing line between *T. nigrilorum* and *T. saturatus* is also about the 1,700′ contour. The upper altitudinal limit of *nigrilorum* is 9,500′, the height of the highest forested ravines.

Turdus nigrilorum compared with the other montane birds of the Cameroon Mountain.

Generally speaking the peculiar montane forms of the Cameroon Mountain are not closely related to lowland forms in the country surrounding the mountain but have their nearest relatives in the highlands of

East and Central Africa. *T. nigrilorum* is an exception for it is am ontane representative of a wide ranging predominantly lowland species and it intergrades with the race of that species inhabiting the lower slopes of the mountain and the adjacent lowlands.

Turdus libonyanus in its Southern Cameroons range apart from the Cameroon Mountain district.

A series of *T. libonyanus* collected by me in various localities in British Cameroons, including the Bamenda Highlands, are all *T. l. saturatus* and cannot be distinguished from a nearly topotypical series collected at Victoria:—

5 ♂; 5 ♀; near Kumba; 700′–1,200′; ♂, W. 114, 114, 115, 116, 117; T. 86, 83, 87, 83, 89: ♀, W. 106, 110, 110, 111, 113; T. 81, 83, 85, 81, 83.
1 ♂; Tombel; 1,500′; W. 114; T. 86.
1 ♀; Manenguba Mountain; 6,500′; W. 110; T. 77.
1 ♂; Foto; 5,200′; W. 115; T. 86.
1 ♂; Bafut; 4,500′; W. 116; T. 85.
1 ♂; Bamenda; 5,500′; W. 113; T. 85.
1 ♀; Kishong; 6,400′; W. 110; T. 80.
1 ♀; Oku; 7,000′; W. 120; T. 83.

Variation in wing and tail measurements in *T. l. nigrilorum* and *T. l. saturatus*.

In this series of *nigrilorum* and *saturatus* the wing and tail lengths of males average a few mms. more than those of females. There is no difference in wing length between *nigrilorum* and *saturatus*. In *saturatus* wing length and tail length is unaffected by altitude or locality. The tail length of *nigrilorum* averages a few mms. less than that of *saturatus*.

Juvenile plumage of *T. l. nigrilorum*.

The juvenile *nigrilorum* is distinguished from juvenile *saturatus* by the same characters distinguishing the adults of the two forms, namely the colour of the flanks, axillaries and under wing-coverts. In *nigrilorum* the light tipped upper wing-coverts remain for some time after the disappearance of the other juvenile plumage characters.

* Chapin and some other recent authors regard *saturatus* as a race of *Turdus olivaceus* Linn., but for the purpose of this note I follow Sclater (*Syst. Av. Aeth.* ii. 1930, p. 440), placing it with *libonyanus*.

The affinities of the Red Avadavat, *Amandava amandava* (Linn)

by C. J. O. Harrison

Received 6th December, 1961

INTRODUCTION

There have been several recent revisions of the Estrildidae. Delacour (1943) recognised in his revision the existence of three main divisions or tribes—the waxbills, Estrildae; the grassfinches, Erythrurae; and the mannikins, Amadinae. With the suffix now used to indicate tribal rank these would become Estrildini, Erythrurini, and Amadinini. Morris (1958) studied the comparative ethology of the two latter tribes and suggested some modifications of Delacour's arrangement. Wolters (1957) and Steiner (1960) also revised the Estrildidae. The former used no tribal divisions; the latter recognised nine. I consider that Delacour's arrangement is taxonomically useful and have utilised it in this paper.

In the tribes as recognised by Delacour the grassfinches are found only in Australasia; the mannikins occur in Africa, Australasia and Asia, and the waxbills, with three exceptions, are confined to Africa. One exception is the Sydney Waxbill or Red-browed Finch, *Aegintha temporalis* (Latham). It has a strong resemblance to *Estrilda* in which genus Delacour placed it, but a study of its behaviour (Morris 1958; Harrison MS.) raises doubts, as does its geographical distribution, for it is found only in Australia, and it seems likely that it is a grassfinch. Wolters (1957) places it near *Amandava*, while Steiner considers, from the mouth-markings of the nestling, that it is closely related to the parrot finches, *Erythrura* (*Chloromunia* of Steiner). The other two exceptions are the Red Avadavat, *Amandava amandava*, and the Green Avadavat, *A. formosa* (Latham), both from the Indian region. An African species, *A. subflava* (Vieillot) is also considered to be a member of this genus. The avadavats appear always to have been regarded as having close affinities with the African waxbills, and Delacour considered them a subgenus of *Estrilda*. Only the species *A. amandava* is considered here and the purpose is to show by a study of both morphological and behavioural characters where its true affinities lie.

Only limited information is available on the behaviour of the African waxbills and references to waxbill behaviour in the following notes concern mainly species in the genera *Estrilda*, *Lagonosticta*, and *Granatina*. Where the term mannikin is used it refers to Delacour's tribe Amadinae.

PLUMAGE

Description. The colour of the male is mainly red (scarlet in *A. a. flavidiventris;* crimson in *A. a. amandava*), brightest on the breast, throat, and ear-coverts, browner on crown, nape, and mantle. The wings are brown with red-tinged coverts, and the tail is black with scarlet upper tail-coverts. In *A. a. flavidiventris* the belly and under tail-coverts are golden-orange, but in *A. a. amandava* and *A. a. punicea* they are black. *A. amandava* is unique among the Estrildidae in that the red colour of the cock is present only while the bird is breeding, and for some of the year it is like the hen, which is drab brown above and buff below. Both sexes have black lores, and there is a whitish streak just below the eye. Hens, and cocks in non-breeding plumage, have white spots on the wing-coverts, and the upper tail-coverts are red with white spots. In both sexes the bill is bright red and the legs and feet are yellow-buff.

A striking character of the cock's red plumage is the presence of numerous small white spots; single white subterminal spots being present on every feather on the areas of plumage where these markings occur. They are most conspicuous on the breast, flanks, and wing-coverts, but similar, smaller spots are present on the lower edge of the mantle and on the upper tail-coverts; and in some specimens minute spots can be seen at the sides of the nape and on the ear-coverts. Sometimes the spots on the innermost secondary coverts form small white bars, and the outermost tail feathers of both sexes have white tips rather similar in appearance. There is some individual variation in this spotting and a specimen of *A. a. punicea* (Brit. Mus. no. 87.7.1.2555) shows, in addition, white spots covering the rump and lower back. In some specimens of *A. a. flavidiventris* these spots, particularly on the breast, tend to be elongated, giving a slightly streaky appearance.

Resemblance to waxbills. The only similarity to the African waxbills is a strong superficial resemblance to some of the firefinches of the genus *Lagonosticta* and in particular to *L. senegala.* The male of the latter species is mainly red, with brown wings, and a few white spots on either side of the breast. The hen is olive-brown with a small red patch over the eye and more extensive, but duller, spotting on the breast. Both sexes have red rumps and red and black tails. Where spots are present on the plumage of firefinches and other waxbills these never extend beyond the breast and flanks, and there is no parallel to the pattern of *A. amandava.* The spots of *Lagonosticta* are derived from a pattern of paired spots on the tip of the feather, formed on the barbs. Those of *A. amandava* are single spots on the tip of the feather, based on the rachis (Wolters, 1944).

Resemblance to mannikins A monochrome photograph of a New Guinea mannikin, *Lonchura leucosticta* (D'Albertis and Salvadori), drew attention to the strong resemblance between that species and *A. amandava.* The specimen illustrated was kindly lent by the Leiden Museum (Skin no. Mus. N. H. Leiden 552). *L. leucosticta* is brown in colour with small white streaks along the feathers of forehead, crown and nape; and white lozenge-shaped subterminal spots on mantle, back and wing-coverts. Large white spots are present on the feathers of the breast and the foreparts of the flanks, and there are similar spots on the sides of the head and on the throat, obscuring much of the ground colour and giving the head a pale, streaky appearance.

This pattern seems to be unique among the mannikins, but there is some evidence of a pattern from which it could be derived in other related species. *Lonchura kelaarti* (Jerdon) has fine, pale buff streaks down the centre of each feather, along the line of the rachis, on breast, head, mantle and back. *L. leucogastra* (Blyth) has similar streaks on head, mantle, back and wing-coverts, and these are whiter, contrasting with the dark brown ground colour of the feathers. When these are carefully examined it can be seen that on the feathers of the mantle the fine white streaks broaden at the tip into tiny lozenge-shaped marks. An example of *Lonchura tristissima* (Wallace) shows some feathers with pale rachial streaks among the dark feathers of the upper breast, while feathers at the sides of the breast show a pale buff rachial streak that is interrupted, to reappear as a large buff spot occupying much of the terminal portion of the feather. *L. leucosticta* has streaks on the feathers of crown and nape, but the markings on the feathers of the mantle are faint rachial streaks which fade, but reappear at the tip as bold, lozenge-shaped white spots.

In a continuation of the same trend a pattern such as is shown by *L. leucosticta* could give rise to the spotted pattern shown by *A. amandava.* Specimens of *A. a. flavidiventris* show in some cases elongated, lozenge-shaped spots, particularly on the breast, and if an individual feather is examined it is found that the lower half, normally concealed, is brown, with a distinct buff spot on the rachis at the point where the red colour begins. In *A. a. amandava* the lower part of the feather is black and the white spots are rounder in shape. There would appear to be evidence here of the final loss or obliteration of a pale rachial streak, and my contention is that this pattern is a variant of the same basic type as that found in the mannikin species referred to above.

There is another plumage resemblance between *L. leucosticta* and *A. amandava*. The former is drab brown in colour, but the breast is a light chestnut-brown becoming paler on the throat, and the upper tail-coverts are a pale golden-straw colour. These straw-coloured upper tail-coverts are common to many mannikin species. Although the male of *A. amandava* is generally red, this colour may be lost at successive moults by specimens kept in captivity. Loss of red in captive birds occurs in many species and is not fully understood, although in some cases it is known to be due to absence of a carotenoid in the diet. It does not, however, seem, from the evidence at present available, to be merely a matter of diet, and other factors may be involved. The red colour present in some waxbills, particularly birds of the genus *Lagonosticta* is not lost in this fashion, suggesting that different pigments may be responsible. There is an example of *A. amandava* in the British Museum (Natural History) (no. 1875. 7.13.152) which had been kept in captivity, and lost all trace of red. This bird is drab brown with light, chestnut-brown on the breast and throat and yellow upper tail-coverts. In general colour the above specimen very closely resembles *L. leucosticta* but differs in that the belly and under tail-coverts are the typical black of its race, and the yellow upper tail-coverts are tipped with white spots. It would therefore appear that *A. amandava* not only resembles *L. leucosticta* in pattern but that the cock, when breeding, would also resemble it in general coloration were this not concealed by the red pigment.

BEHAVIOUR

Posture. Perching, and the grasping of objects with the foot appear to be fairly consistent characters for the waxbills. Species of *Estrilda* are capable of clinging to upright objects, and can deliberately use the foot to hold down an object such as a grass-stem when feeding on it. *Granatina* and *Lagonosticta* species are less agile and need a more level perch. They are unable to use the foot for holding down anything.

A. amandava differs from both of these in its capacity for a wider grasp, and for divergent grasping. It is able to rotate the foot outwards and grasp vertical stems on either side so that the body is supported upright between them. Apparently as a result of this when it perches on a horizontal support its posture tends to be upright, especially when it is alert, whereas the corresponding posture of the waxbills tends to be horizontal.

The wide grasp of the foot appears to be an adaptation for taking hold of a number of stems at one time. When this species is kept in typical cages and aviaries furnished with horizontal twigs as perches it would appear that the absence of the necessary pressures and frictions resulting from the usual holds of grasses and other vegetation for which the foot is adapted permits the continued growth of the claws. As a result such birds suffer from abnormally long claws which, if they are not cut at intervals, become so elongated that they entangle in anything on which the bird perches and are a considerable hindrance to movement. The Museum specimen previously mentioned, which had been kept in captivity, lacks claws on both middle toes, but the claw of each hind toe is twice the length of a normal hind claw and has begun to twist to one side.

In the above respect the posture of *A. amandava* is unlike that of the typical African waxbills. A similar type of upright posture and a wide-grasping foot are, however, common to the mannikins, which also show this tendency to excessive claw growth when kept in captivity. It can be argued that this type of posture and grasp would have been evolved independently by *A. amandava* since its typical habitat is among vegetation that requires it. But if this is an adaptation to such circumstances one would expect to find similar evidence of it in many of the waxbill species which live in grassland and feed on grasses in circumstances where such an ability would be advantageous.

Tail Movements. When excited or alarmed the Estrildidae characteristically show vigorous movements of the tail accompanied by distinctive call-notes. In the waxbills these tail movements are in a lateral plane, the tail being jerked repeatedly to one side or swung from one side to the other. In the mannikins a type of tail flicking similar to the former may occur, but at moments of intense excitement or alarm the tail movements of *Lonchura striata L. punctulata* and *Euodice malabarica* consist of side to side movements in which the tail is raised when held to one side but is lowered as it is moved, the dipping movement being superimposed on the swing so that the tail-tip follows a U-shaped track. Under similar conditions *A. amandava* shows tail movements of the latter type and when viewed from the side the tail can be seen to have a downward displacement of about 40° during this movement.

Song and Posture. As a general rule the songs of mannikins and grassfinches are soft and contain many harsh sounds, and often long-drawn wheezy notes. The songs of waxbills are usually loud and relatively musical. The song of *A. amandava* is a prolonged, high-pitched but pleasant warble gradually descending in pitch. It appears to have a set pattern. It bears some resemblance to the longer song phrases uttered by some of the waxbills. I had a hybrid offspring of a male *Euodice malabarica* and a female *Lonchura striata* which could only have learnt the song of the father and sang what seemed to me to be a loud and slow version of it. This song appeared to me to be very similar to that of *A. amandava*.

The song posture is distinctive. Waxbills of the genera *Estrilda*, *Lagonosticta*, and *Granatina* (including *Uraeginthus*) raise the bill when singing and tend to fluff out the feathers of belly and flanks, resulting in a rather broad-based appearance. When *A. amandava* sings it perches relatively upright with body feathers sleeked rather than fluffed and bill almost horizontal, the posture closely resembling that shown for *Euodice malabarica* by Morris (1958). This is true of these two species when they are motivated by a strong emotional drive. Both *A. amandava* and *E. malabarica* differ from the waxbills in that whereas in the waxbills the utterance of song appears to indicate a high level of emotional motivation, the song of the other two is much more generalised and casual. It may be uttered by a bird which is apparently relaxed and sitting close against another on a perch, in which case the singer may have the contour feathers relaxed and relatively loose.

The circumstances in which song occurs are also of interest. In the wax bills already mentioned song has either a display or solitary function. Its utterance indicates that a bird is either reacting sexually towards another or is isolated, and usually the presence of another bird appears to inhibit song. *A. amandava* also utters song when displaying but will otherwise give it without apparent relevance to circumstances. The song may have a solitary function in that it is most frequently heard when a bird is unpaired, or separated from its mate, but it may also be heard from a bird that is in the company of others of its species, or even from a bird that is clumped with others. (See also Goodwin, 1960.) This appears to be behaviour similar to that described for a mannikin, the Spice Finch, *Lonchura punctulata*, by Moynihan and Hall (1954). In the latter species a male will sing when clumped with a group of other Spice Finches, although it is stated that such a bird is either unmated, or, if mated, the group does not contain his female. This is probably true of *A. amandava* also, although it would appear to differ from *L. punctulata* in that the female will also sing when separated from her mate.

Display. All the waxbill genera referred to have a straw display in which the male bobs up and down holding a grass-stem or feather by its tip in his bill. The bill is raised and, while belly and flank feathers are fluffed out, the other feathers tend to be sleeked down. *A. amandava* also holds a feather or grass-stem by its tip in the bill but performs a series of low bows, and during the display has the body feathers all erected and fluffed out, making the body appear much larger when seen broadside on. There is an illustration showing this in a paper by Kunkel (1959). This species is again peculiar in that both sexes display.

Bowing displays also occur in some waxbill species but this type of feather erection has not been recorded. What appears to be a similar feather erection has been seen in a precopulatory display of *E. malabarica*. In this the male displayed on a perch near the female with jerky bobbing movements like those of the waxbill's straw display, but with the head held low and with the contour feathers, especially those of belly, flanks and mantle, raised, giving him a peculiar, laterally flattened appearance and making him seem twice as large.

OTHER *AMANDAVA* SPECIES

Two other species, *A. formosa* and *A. subflava*, are now usually regarded as members of this genus. Delacour (1943) places all three species as a subgenus of *Estrilda*; Wolters (1957) regards them as a genus but puts all three species in separate subgenera to indicate their disparity; while Steiner (1960) regards them as a tribe, Amandavae, with these three species in separate genera and the genus *Ortygospiza* also included. This does help to illustrate that they are not regarded as being as closely related as the members of other estrildine genera.

A. formosa and *A. subflava* resemble one another in having the plumage unpatterned except for some bold transverse barring on the flank feathers. *A. formosa* is yellow below and olive-green above and the sexes are alike. *A. subflava* is brown above and yellow below and has in addition a red rump, and a red stripe over the eye: the hen is duller in colour and lacks the eye-stripe. In some races the male has a red colour over much of the breast, and this species resembles *A. amandava* in that the red colour is lost after moult by captive birds.

As regards the wide grasp of the foot it is of interest that the photograph of this species at its nest in Mackworth-Praed and Grant's work on African birds (1955) shows it clinging to upright grass-stems, among which its nest is situated, by grasping a bunch of stems in the foot. There appears to be no information regarding the mode of perching of *A. formosa*. *A. subflava*, like *A. amandava*, also shows a tendency to excessive claw growth in captivity. The behaviour of *A. subflava* has been described by Kunkel (1959) and Goodwin (1960). It has a bowing display with erection of the feathers but holds nothing in its bill. *A. formosa* has a similar type of display. In all three species the young, when begging for food, raise one or both wings. There appears not to be a true song (in the sense of a complex utterance) in either *A. formosa* or *A. subflava* but Goodwin records a single note uttered by the latter species which appears to function as song. The singing bird is recorded as perching very upright and turning the head from side to side as it sings. This head-turning is also characteristic in the singing of *E. malabarica* and *L. punctulata*.

Any conclusions regarding the affinities of *A. amandava* must, in the absence of any other evidence, apply to *A. subflava* and *A. formosa* also.

CONCLUSIONS

From a study of its plumage pattern and its general posture and behaviour *A. amandava* was found to show little or no affinity with the typical African waxbills (Estrildini). In all the above characters it revealed a closer affinity with various species of mannikin (Amadinini). It is not suggested that *A. amandava* is closely related to any particular mannikin species but that it is a member of this tribe showing specialisation for a particular habitat or mode of life.

References:
Delacour, J. (1943). A revision of the subfamily Estrildinae of the Family Ploceidae. *Zoologica* 28: 69–86.
Goodwin, D. (1960). Observations on Avadavats and Golden-breasted Waxbills. *Avic. Mag.* 66: 174–199.
Kunkel, P. (1959). Zum Verhalten einiger Prachtfinken (Estrildinae). *Zeits. f. Tierps.* 16: 302–350.
Mackworth-Praed, C. W. and Grant, C. H. B. (1955). *African Handbook of Birds.* Ser. 1, Vol. 2. London.
Morris, D. (1958). The comparative ethology of Grassfinches (Erythrurae) and Mannikins (Amadinae). *Proc. Zool. Soc. Lond.* 131: 389–439.
Moynihan, M. and Hall, M. F. (1954). Hostile, sexual and other social behaviour patterns of the Spice Finch (*Lonchura punctulata*) in captivity. *Behaviour* 7: 33-76.
Steiner, H. (1960). Klassifikation der Prachtfinken, Spermestidae, auf Grund der Rachenzeichnungen ihrer Nestlinge. *Jour. F. Ornith.* 101: 92–112.
Wolters, H. E. (1944). Ueber den taxonomischen Wert der weissen "Tropfenfleckung" bei den Estrildinen. *Ornith: Monats.* 52: 27–29.
Wolters, H. E. (1957). Die Klassifikation der Webefinken (Estrildidae). *Bonn. Zool. Beitr.* 8: 90–129.

Notes on some undescribed eggs from New Guinea

by S. A. Parker

Received 6th December, 1961

Eggs of the following species obtained by Mr. F. Shaw Mayer in the Kratke Mountains, New Guinea, for the Hon. W. Rothschild, and now in the National Collection, appear to be undescribed.

Pitohui dichrous (Bonaparte)

Shaw Mayer obtained four clutches of this woodshrike in the Buntibasa district, Kratke Mountains, at 4,000 ft. They are as follows:—

c/1, 21st November, 1932 (Reg. No. 1941. 1. 5. 21) c/2, 13th February, 1933 (Reg. No. 1941. 1. 5. 18) and c/1, 14th February, 1933 (Reg. No.

1941. 1. 5. 20). The fourth clutch, a c/1, bears no date, but belongs to the same series.

The ♀ parent of one clutch is also in the National Collection (Reg. No. 1939. 12. 9. 1529). Another ♀ (Reg. No. 1939. 12. 9. 1528) was secured on her nest with one chick at Buntibasa on the 12th December, 1932.

The nest, according to field notes accompanying the eggs, is "open basin-shaped, composed almost entirely of curly vine tendrils, lined with finer tendrils". The nest-site is not mentioned.

The five eggs are elliptical in shape. They have a uniform creamy or light pinkish-stone ground, with light and dark brown (sometimes blackish) spots and blotches and underlying light grey patches, evenly distributed over the surface, though one egg has most of the markings around the larger end.

Measurements in mm. are:— 30.8 x 21.5 and 30.9 x 21.5; 32.8 x 22.2; 27 x 20.5; 29.2 x 21.6.

Pitohui nigrescens (Schlegel)

A female of this species, also in the National Collection (Reg. No. 1939. 12. 9. 1522) was taken while incubating a single egg; another was ready for deposition. This was on 28th December, 1932 at 4,500 ft. in the Buntibasa district.

The nest is described as being "open cup-shaped, composed of whole fern fronds loosely held together with fine rootlets, and lined with fine rootlets".

The single egg (Reg. No. 1941. 1. 5. 23) is very distinctive, having a deep maroon-brown ground colour; light and dark brown, and underlying grey blotches and spots are evenly distributed over the shell, which is elliptical, measuring 32.5 x 23.3 mm.

A new race of warbler *Apalis flavida* (Strickland) from Central Africa

by WALTER J. LAWSON

Received 16th September, 1961

In a recent paper on the southern and eastern races of *Apalis flavida* in Africa (*Durban Mus. Novit.*, vol. 6, (9), 119–126, 1961) I remarked on the possibility of the populations of this small warbler from central and northern Angola, western Northern Rhodesia and the south-eastern Congo representing a hitherto undescribed race. I refrained from formally proposing a name because of an inadequacy of material from the area.

Since then I have been fortunate enough to have on loan and to examine specimens from Angola, western Northern Rhodesia and the eastern Congo which were kindly sent at my request by Dr. James P. Chapin of the American Museum of Natural History and Mr. Melvin A. Traylor of the Chicago Natural History Museum, in addition to the specimens already placed at my disposal by Mr. M. P. Stuart Irwin of the National Museum of Southern Rhodesia.

Among the specimens received from Dr. Chapin were those from Baraka, north-west shore of Lake Tanganyika to which he referred in

Birds of the Belgian Congo, pt. 3, p. 280, 1953, as being similar to *A. f. neglecta* (Alexander): Zambesi River, but differing from that form in that the "hind crown is usually without green".

I have noted that the specimens examined by me from Northern Rhodesia, west of the Muchinga Mountain range, differ from *A. f. neglecta* in having the entire head-top grey, whereas in *A. f. neglecta* the grey is confined to the forehead, with the green of the back extending onto the nape of the neck and crown of the head.

This unnamed form resembles *A. f. tenerrima* Grote: Mikindani, S.E. Tanganyika Territory, in having the head-top entirely grey, and the yellow of the under surface of the tail confined to the very tips of the rectrices. However these two forms are not in contact, *A. f. tenerrima* being confined to the coastal and the south-eastern lowland areas of Tanganyika Territory and northern Mocambique. This unnamed form differs from *A. f. golzi* (Fischer & Reichenow): Great Arusha, Tanganyika Territory, in which form the under surface of the tail feathers is wholly yellow, and in having the under tail-coverts yellow as well.

I previously stated that this new race occurred in central and northern Angola, but specimens in the Chicago Natural History Museum from Huila and Dondo and in the American Museum of Natural History from Chibia and Fort Quilenges are all referable to *A. f. flavida* (Strickland): Ngamiland (Damaraland *in error*), in which form the yellow of the breast extends onto the throat.

The range of this new form would therefore appear to be northern Angola, Northern Rhodesia, west of the Muchinga Mountains, and eastern and south-eastern Congo (Katanga and southern Kivu).

Apalis flavida canora subsp. nov.

Type: ♂ adult, Sumbu, Northern Rhodesia (8° 30′ S, 30° 28′ E.), altitude 2,600 ft. Collected on the 20th May, 1956 by C. W. Benson. In the collection of the National Museum of Southern Rhodesia. Cat. No. 26826.

Diagnosis: Differs from *A. f. golzi*, *A. f. tenerrima*, and *A. f. neglecta* as stated above. Differs from *A. f. flavida* in having no extension of yellow on the throat, and from *A. f. lucidigula* Lawson: nr. Newington, eastern Transvaal, which has the yellow of the breast clear, with no admixture of olive-green or grey.

Measurements: 8 ♂♂ wing 49.5–53.5 (52.1), tail 46.0–51.5 (48.4), culmen 13.5–15.0 (14.0); and 7 ♀♀ wing 46.0–55.0 (50.1), tail 39.0–47.5 (42.6), culmen 13.0–14.5 (13.7) mm.

Material: 15 (Northern Rhodesia: Sumbu, Kabompo, Kasana, Kasempa, Mutanda, Manyinga Riv., Mankoya, Balovale, Mwinilunga, and the eastern Congo 4: Baraka.)

Measurements of Type: wing 53.0, tail 48.5, culmen 15.0 mm.

Range: Northern Angola, western Northern Rhodesia, west of the Muchinga Mountains and south-eastern and eastern Congo (Katanga and southern Kivu).

I am greatly indebted to Dr. James P. Chapin who kindly read and criticized the manuscript of this paper.

H MUSEU
-9 OCT 196

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov., sp. nov., subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 5*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 5*s*., payable to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1962

16th October, 20th November, 18th December.

(The October or November meeting will be a joint one with the B.O.U.)

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

Edited by
JOHN J. YEALLAND

BRITISH MUSEUM (NATURAL HISTORY)

-7 NOV 1962
PURCHASED

Volume 82
No. 8

November
1962

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

BRITISH MUSEUM ... NATURAL HISTORY

Volume 82
Number 8
Published: 5th November, 1962

The six hundred and first meeting of the Club was held, in conjunction with the B.O.U., on Tuesday, 16th October, 1962.

Check-list of birds of the world

Volume XV, edited by Ernst Mayr and James C. Greenway, Jr., has been published by the Museum of Comparative Zoology, Harvard University, Cambridge 38, Massachusetts. Price $\$7.^{50}$.

This volume contains the Ploceidae, Sturnidae, Oriolidae, Dicruridae, Callaeidae, Grallinidae, Artamidae, Cracticidae, Ptilonorhynchidae, Paradisaeidae and Corvidae.

Geographical variation in the Fiscal Flycatcher *Melaenornis silens* (Shaw) of South Africa

by WALTER J. LAWSON

Received 29th January, 1962

The Fiscal Flycatcher *Melaenornis silens* (Shaw), which has hitherto been regarded as being monotypic, is peculiar to southern Africa, being found in the Cape Province, south-eastern Bechuanaland Protectorate, Orange Free State, Basutoland (lowlands), the Transvaal, and Natal and Zululand. In winter the eastern highveld populations tend to move to lower altitudes, during which time the species occurs in the eastern littoral plain of Zululand and southern Mocambique. It apparently does not extend into Southern Rhodesia.

This species is currently placed in the monotypic genus *Sigelus* Cabanis, or otherwise in *Bradornis* A. Smith, but in so far as the generic placing of this singular flycatcher is concerned, I prefer to follow the views of Vaurie (*vide Bull. Amer. Mus. Nat. Hist.*, vol. 100, part 4, 1953, pp. 457–538) in merging *Sigelus* into *Melaenornis* Gray, which results in the nomenclatural combination of the Fiscal Flycatcher becoming *Melaenornis silens* (Shaw).

In the topotypical populations of *M. silens* described in 1809 from Knysna, southern Cape Province, on a Levaillant reference, the males of this flycatcher have the upper parts, ear-coverts and wings a glossy blue-black, and the lower throat, breast sides of the body and flanks silky white, strongly suffused with light smoke grey, this especially marked over the breast and lateral surfaces of the body.

On study of a reasonably adequate series of skins of this species assembled at the Durban Museum it became evident that the Fiscal Flycatcher was not lacking in geographical variation, the populations being divisible into two quite satisfactory subspecific categories on the basis of the coloration of the under parts of adults in fresh dress. In brief, it was ascertained that in the populations occurring to the north of the Orange River in the northern Cape Province, south-eastern Bechuanaland Protectorate, dry western Orange Free State, and the western Transvaal, the males lacked much of the clear grey suffusion over the breast and lateral surfaces of the body of the southern birds, which areas were distinctly whiter and more buffish tinged.

In selecting a name for the newly characterized taxon I have experienced some little difficulty, but of the several names available in synonymy, *Bradyornis leucomelas* Sundevall, 1850: *Caffraria superiore*, appears applicable, being based on material collected by Sundevall's compatriot J. A. Wahlberg in the 1840's, probably at a place called Mohapoani, in the Rustenburg district of the western Transvaal, where Wahlberg got most of his upper Caffrarian material. Enquiries made of Dr Gustav. Rudebeck, now Curator of Birds at the Naturhistoriska Riksmuseum, Stockholm, as to the applicability of Sundevall's *B. leucomelas* for the new subspecies has to date failed to elicit a reply, and it may be that when data on the relevant Sundevall *Type* in the museum at Stockholm become available a change in name may be required. In the meantime, I propose to designate the northern race of the Fiscal Flycatcher *M. s. leucomelas* Sundevall, 1850, fixing the type-locality as Mohapoani, Rustenburg district, western Transvaal.

The nomenclature, characters and ranges of the two races of the Fiscal Flycatcher are as follows:

(*a*) *Melaenornis silens silens* (Shaw).
Lanius silens Shaw, *General Zoology* vol. vii, 2, 1809, p. 330: Knysna, southern Cape Province, *ex* Levaillant, *Hist. Nat. Ois. d.Afr.*, vol. ii, 1799, p. 103, pl. 74.

Diagnosis: Characterized by having, in the adult male in freshly moulted dress, a heavy suffusion of smoke-grey over breast and lateral surfaces of the under parts.

Measurements: 10♂♂ wing 93.0–99.5 (96.4); tail 81.0–83.0 (81.8); culmen 19.0–21.0 (19.5): 10♀♀ wing 90.5–94.0 (91.9); tail 74.0–79.0 (76.7); culmen 18.0–20.5 (19.3) mm.

Material: 101 (Cape Province 77, Orange Free State 14, Natal 6, Swaziland 2, eastern Transvaal 1, southern Mocambique 1).

Range: Cape Province south of the Orange River, except in the arid north-western districts, where the species is absent, the eastern highveld of the Orange Free State, the lowlands of Basutoland, the southern and eastern Transvaal, and Natal and Zululand. Absent from the lower midlands and coast of Natal and the eastern littoral of Zululand, but present there and in eastern Swaziland, the eastern lowveld of the Transvaal and southern Mocambique as a non-breeding visitor during the period May–September.

Remarks: In worn plumage the grey suffusion tends to disappear and the feathers of the chest become soil stained, and under such conditions a specimen of the nominate race may occasionally resemble to some extent a freshly moulted specimen of the following taxon.

(*b*) *Melaenornis silens leucomelas* (Sundevall), new race
Bradyornis leucomelas Sundevall, *Oefv. K. Sv. Vet. Akad. Förhandl.*, vol. vii, 1850, p. 106: *Caffraria superiore.* Type locality here restricted to Mohapoani, Rustenburg district, western Transvaal.

Diagnosis: Differs from the nominate race, as defined above, in lacking in the adult male the strong smoke-grey suffusion to the breast and lateral surfaces of the under parts, this being largely replaced by a light buffish-grey overlay to the predominantly white under parts. Averaging a little smaller in size.

Measurements: 9♂♂ wing 93.0–99.5 (95.7); tail 76.5–83.0 (79.6); culmen 18.0–19.5 (18.5); 4♀♀ wing 89.5–92.0 (90.9); tail 71.0–74.5 (72.5); culmen 18.0–19.5 (18.5) mm.

Material: 25 (northern Cape Province 9, western Orange Free State 2, Transvaal 4, Bechuanaland Protectorate 8, Zululand 1, Swaziland 1.)

Range: Cape Province north of the Orange River, the dry western Orange Free State, the western Transvaal and the eastern Bechuanaland Protectorate. Occasionally ranging into northern Zululand, Mocambique and Swaziland during winter as a non-breeding visitor.

ACKNOWLEDGEMENTS

For the loan of series of the Fiscal Flycatcher I am deeply indebted to the Directors of the following museums: South African Museum, Cape Town (through Dr. J. M. Winterbottom); East London Museum; Transvaal Museum; and the National Museum of Southern Rhodesia, Bulawayo (through Mr. M. P. Stuart Irwin.) I am also grateful to Mr. P. A. Clancey for looking at the assembled material with me and for assistance in other ways, and to Dr. J. M. Winterbottom, Director of the Percy Fitzpatrick Institute of African Ornithology, Cape Town, for his assistance with the early literature concerning this species.

A new Cossypha from Kenya

by G. John Williams

Received 6th March, 1962

During January—February, 1962 Mr. John R. M. Tennent undertook a brief collecting trip to the mist forest on Mt. Endau, Kitui District, Kenya, on behalf of the Coryndon Museum, Nairobi.

Among the birds he obtained is a series of six specimens (5 adults and 1 immature) of a distinct new race of *Cossypha natalensis.*

I have pleasure in naming this bird

Cossypha natalensis tennenti Subsp. nov.

in honour of Mr. John R. M. Tennent who has added much to our knowledge of local birds during his service in Kenya.

Description: Cossypha natalensis tennenti differs from all other known races in having the underparts, head, back, rump and tail much paler and yellower (*light cadmium* Ridgway) with only a slight trace of rufous wash.

Type: Adult male (Collector's No. 63). Loc. Mist forest, Mt. Endau, Kitui District, Kenya. 3,400 ft. 25th January, 1962: Collector J. R. M. Tennent; in mist net. The Type and a paratype female will be deposited in the collection of the British Museum (Natural History).

Measurements of Type: Wing 94; Exposed culmen 16.5; Tail 82; Tarsus 27 mm.

Remarks: Three adult male paratypes measure: Wing 93, 94, 93; Exposed culmen 15, 14, 15; Tail 85, 83, 85; Tarsus 27, 27, 27 mm. One adult female paratype measures: Wing 87 (in moult); Exposed culmen 15, Tail no measurement, in moult; Tarsus 27 mm. The immature bird is paler and less rufous than similar examples of other races.

Distribution: Apparently confined to the mist forest and adjacent bush on Mt. Endau, Kitui District, Kenya.

I should like to record my thanks to Mr. M. E. W. North who sponsored the expedition, to Mr. Peter Hill, District Commissioner, Kitui, for his valuable assistance in the field, and to the skinners, Joseph Mbonge and Nguyu Mburu, for preparing first-class specimens under difficult conditions.

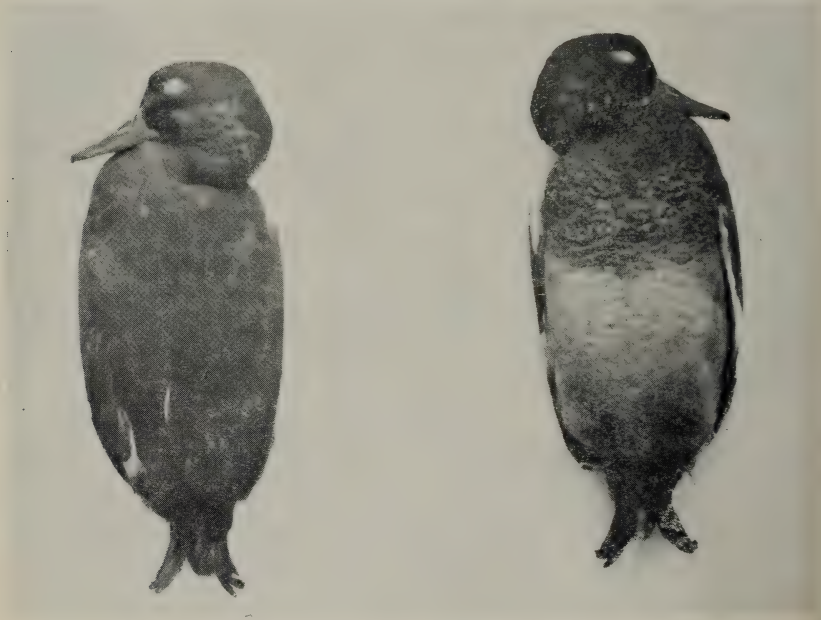
A hybrid Red-crested Pochard x Ferruginous White-eye

by BRYAN L. SAGE

Received 23rd February, 1962

There appear to be few recorded occurrences of the inter-generic hybrid *Netta rufina* (Pallas) x *Aythya nyroca* (Guldenstadt). Hopkinson (1935 a & b) merely lists the cross with no comments, and it is also referred to by Phillips (1923–1926). Gray (1958) lists both these references and the one given below, together with the remark that hybrids back-crossed to the Ferruginous White-eye result in offspring scarcely distinguishable from that species.

On 8th May, 1929, the late Lord Walter Rothschild exhibited a skin



Red-crested Pochard x Ferruginous White-eye.

of this hybrid to the British Ornithologists' Club (*Bull. Brit. Orn. Club.* 49: 97). This is the specimen that forms the subject of the present communication: it is a male of the parentage male Red-crested Pochard x female Ferruginous White-eye, and was bred by the Zoological Society of London and presented to Lord Rothschild on 30th December, 1927. The specimen is now in the Rothschild collection at the American Museum of Natural History, New York, Registered Number AMNH. 734542. It is a male in adult plumage.

DESCRIPTION

In order to facilitate comparison the plumage characters of the hybrid are shown in tabulated form, together with those of the males of the parental species:

	Red-crested Pochard (male)	Hybrid (male)	Ferruginous White-eye (male)
Head and neck	pinkish-vinaceous, lower neck black, forehead and crest cinnamon-rufous.	medium vinaceous-chestnut; many underlying feathers of cheeks cafe-au-lait tipped with vinaceous-chestnut.	reddish-chestnut; white chin spot; blackish collar on lower neck.
Mantle and back	upper mantle dull black; remainder of mantle and upper back drab; lower back, rump and upper tail coverts black glossed dull green.	blackish-brown but lighter than in White-eye and lacking olive tinge; upper tail coverts black-brown.	sides of upper mantle bay; remainder of upper parts black-brown glossed with olive; upper tail coverts black-brown.
Wings	scapulars drab, lowest scapulars mouse-grey, white crescent at base; secondaries white suffused pale drab, sub-terminal light brown bar, tip white; primaries hair-brown, inner webs and inner primaries (except tips) white suffused drab.	scapulars and primaries black-brown, greyer than back and mantle, faint olive gloss on outermost primaries; secondaries white with pale brownish tips; white at base of scapulars as in Red-crested Pochard.	scapulars black-brown, sometimes with bay vermiculations; secondaries white with black-brown tips glossed olive-green, innermost secondaries black-brown glossed olive-green; primaries dusky-brown to black-brown glossed olive-green, inner webs paler shading to pure white.
Under-parts	sides of breast and belly white, tipped or vermiculated dusky; sides of body and flanks drab intermixed with white; rest of underparts black; axillaries white.	breast feathers dark brown with narrow whitish tips; upper belly whitish with cafe-au-lait tinge, some feathers with darker brown sub-terminal bars; flanks and sides of breast washed cinnamon; remainder of under-parts pale brown, darker on vent and under tail coverts; axillaries white.	upper breast and sides of breast reddish-chestnut; sides of belly and lower flanks cinnamon-drab; centre of breast white vermiculated ashy; belly and vent deep ash-brown with buff or white tips; under tail coverts white; axillaries white.

MEASUREMENTS

The principal measurements of the hybrid and the males of the parental species are shown below. Study of this table shows that the hybrid is nowhere near as large a bird as the male Red-crested Pochard. The wing measurement is well below the minimum for the male Ferruginous White-eye, but comes just within the minimum of the female of that species. The bill, whilst being almost as long as that of the male Red-crested Pochard, is altogether narrower and has less depth at the nostrils.

	Red-crested Pochard	Hybrid	Ferruginous White-eye
Wing	256–278	172	178–193
Culmen from feathers	48–52	46	40–43
Width of bill at nostrils	26	22	19.5–21
Depth of bill at nostrils	20	18	17–17.5
Max. width	30	22	21

All measurements are in millimetres

DISCUSSION

The general appearance of this hybrid is unlike that of any known species, and it does not seem to possess any characters that might be considered of evolutionary significance.

A study of the tabulated characteristics of the hybrids and the males of the parental species shows that on the whole the general morphology of the hybrid tends more towards the Ferruginous than the Red-crested Pochard. Characters which are clearly intermediate between the parental species are the colour of the head, neck, back, and mantle. A character obviously derived from the Red-crested Pochard is the white at the base of the scapulars. On the other hand it is interesting to note that the white chin-spot of the Ferruginous White-eye does not appear in this hybrid, whereas it did gain expression in both sexes of Ferruginous White-eye x Tufted Duck hybrids (Sage 1962). Similarly, in the latter hybrids the olive gloss on the upperparts of the Ferruginous White-eye was present, whereas it is absent in the hybrid under discussion.

References:

Gray, Annie P. (1958). *Bird Hybrids.* Farnham Royal.

Hopkinson, E. (1935a). ''Duck hybrids''. *Avicult. Mag.* 4th Ser. 13: 78–86.

Hopkinson, E. (1935b). ''Duck-breeding records. Summary of records to date (August 1935).'' *ibid* 4th Ser. 13: 280–286.

Phillips, J. C. (1923–1926). *A natural history of the Ducks.* 4 vols. London.

Sage, Bryan L. (1962). ''Notes on some Ferruginous White-eye x Tufted Duck Hybrids.'' *Bull. Brit. Orn. Club.* 82: 55–60.

A contribution to our knowledge of the Parasitic Weaver, *Anomalospiza imberbis*

by JOHN G. WILLIAMS AND G. STUART KEITH

Received 6th March, 1962

Dr. Herbert Friedmann, ("The Parasitic Weaverbirds", Bulletin 223 of the Smithsonian Institution, United States National Museum, 1960) has drawn attention to the paucity of data concerning the habits of the Parasitic Weaver or Cuckoo Finch, *Anomalospiza imberbis* (Cabanis). The following notes based on field observations and specimens collected between 23rd December, 1961 and 1st January, 1962 may help to fill some of the gaps in our knowledge.

Anomalospiza in my experience (JGW) is an uncommon and elusive bird in Kenya. Its appearances are spasmodic, apparently depending upon a good grass crop. Following the exceptional rains in Kenya during late 1961 and the resulting lush grass, numbers of Parasitic Weavers appeared in the neighbourhood of Nairobi Airport at Embakasi, Kenya. It was in this locality that the specimens and field notes were obtained upon which this paper is based.

When first discovered the birds were in two large, loose flocks of *ca.* 50 and 60 birds each. When disturbed from the grass (they were feeding in almost pure stands of *Setaria sphacelata*) they perched along telephone wires or on the wire fence of the airport perimeter. It was noticeable that many birds perched together in pairs. Their general appearance in flocks, when colour could not be seen, was reminiscent of flocks of Cardinal Queleas. Subsequently the birds were not observed in flocks, but were seen singly, in pairs or sometimes in parties of three or four birds.

Voice: A male perching on a fence uttered a series of notes which probably amounted to a song. The principal notes were a high, thin, sibilant "tissiwick" and "tissiway", the former rising on the last syllable, the latter falling. Sometimes these notes were followed by a little jingle, "djzing-ji-ji". Another call, usually uttered by itself and not as part of a series of notes, was a deliberate "dzi-bee-chew", less sibilant and more distinctly three-syllabled than the "tissiway".

A flight call, given as a bird left the fence and flew off, was a thin, high but hard "jit jit", with a rather bunting-like quality.

Display: Males were observed displaying on three occasions.

1. A male and a female were perched on a fence, the male about a foot below the female and some three feet to one side. The male turned toward the female and started slowly and deliberately flapping his wings, while keeping them held fairly high. At the same time he stretched his neck up in her direction and called an excited, nasal "chi-wee, chi-wee, chi-wee". This display lasted about fifteen seconds, then both birds flew off.

2. A male and female alighted on a road, about three feet apart. The male moved up to the female, raising his wings in a sort of high arch as in display 1, and flapping them fairly slowly though faster than in display 1. He held his neck stretched up and arched it over at the top, so that his head was pointing at the ground directly in front of him. The female remained standing with her back towards the male, showing no interest, and when he came up to her she gave him a peck. This caused him to hop away about two feet and start (displacement?) preening. Birds silent throughout.

3. A male was observed on a road in between two females, about two feet from each. He turned to one female and started sidling up to her, his neck stretched and arched as in display 2, but this time without flapping his wings. When he reached her she flapped her wings a few times and then hopped away. The male then turned to the other female and sidled up to her in exactly the same manner, neck arched but no wing flapping. Both females remained turned away from the male during this display. When the male reached the second female she hopped away, the male following. Then what appeared to be confused fighting broke out between all three birds, and the "fight" was joined by a *Cisticola galactotes* which had been sitting nearby on the road during the display. The interest and aggressiveness on the part of the cisticola may be due to the fact that it is one of the birds parasitised by *Anomalospiza*. After the brief "fighting" all four birds flew off. The birds were silent during this display.

Data based on a series of 14 *specimens collected at Embakasi.*

Colours of soft parts: Adult males in breeding condition; iris blackish-brown; bill black, merging to flesh-white or pinkish-horn at extreme base of lower mandible; feet pale pinkish-grey to horn-grey. Adult male in non-breeding plumage; iris blackish-brown; bill black, merging to flesh-colour at base of lower mandible; feet horn-grey. Note: in old skins the bill fades from black to horn-colour.

Adult female in breeding condition: iris blackish-brown; bill dark brown on culmen, merging to pale pinkish-horn on cutting edge of upper mandible and on lower mandible; feet pale greyish-horn to horn.

Weights of adults in flesh: Adult males, 21, 20, 19, 20.5, 20, 21, 18 and 19 grammes. Adult females, 20, 19, 21, 20, 19 and 19 grammes.

Breeding: With the exception of a single adult male in fresh, non-breeding dress and with small testes, all specimens were in full breeding plumage and in breeding condition. One adult female had an unshelled egg in the oviduct measuring 16 x 10 mm.

Food: In all specimens the crop and stomach contained grass seeds only; seeds of *Setaria sphacelata* and *Sorghum verticilliflorum* were present in roughly equal quantities. (Det. Miss D. Napper, East African Herbarium).

Skull ossification: Only in one adult male was the skull fully ossified: in all the other adult specimens from 30% to 10% of the frontal area of the skull was unossified. Dr. James P. Chapin ("Birds of the Belgian Congo", vol. 4, p. 407) comments upon this condition of incompletely ossified skulls in *Anomalospiza*. This same condition pertains in the genera *Vidua* and *Hypochera*, in which it is most unusual to find an adult bird with a completely ossified skull.

Ornithological notes on the Sunda Strait area and the Karimundjawa, Bawean and Kangean Islands

by A. Hoogerwerf

Received 26th January, 1962

Birds collected during Captain Cook's last expedition

In 1950 Prof. Stresemann[1] drew attention to the birds collected during Capt. James Cook's last expedition. Among these birds are seven which have been wrongly labelled in the Banksian and Leverian cabinets and said to have been collected in February, 1780 on Princes Island in the Sunda Strait.

They are *Dissemurus paradiseus tropicus* (Gmelin) = *D. paradiseus formosus* Cabanis; *Brachypodius atriceps* (Temm.); *Orthotomus borealis* (Gmelin) = *O. sepium* Horsfield; *Butastur indicus* (Gmelin); *Haliaetus leucogaster* (Gmelin); *Streptopelia chinensis tigrina* (Temm.) and *Treron curvirostra* (Gmelin).

The consequences of this are quite important as is evident from Prof. Stresemann's proposals on pp. 82 and 86 of his paper and I give my opinion because of a fairly extensive knowledge of Princes Island's birds. I do this after some hesitation, for I have the greatest admiration for Prof. Stresemann's efforts to find out the correct localities of these birds, at that time quite new to science, but one should not remain silent, for it is possible that on other points also, Prof. Stresemann's investigations have led to wrong conclusions, particularly in cases where it was or is impossible to examine original skins and conclusions had to be based on descriptions or drawings.

Prof. Stresemann, in a letter to me in April, 1956, encouraged me to publish my objections.

Among the species mentioned there are three whose occurrence on Princes Island may be strongly doubted. They are *Dissemurus paradiseus*, *Streptopelia chinensis* and *Treron curvirostra*, all large and conspicuous birds. I could not find any of these after five weeks of intensive collecting and observation on the island[2] and during many visits before and after that expedition between 1937 and 1955, even though I am very well acquainted with the habitat and voice of these and nearly all other birds living in and around the Sunda Strait, an area which I visited regularly during some fifteen years and many times for several weeks at a stretch. There are no indications that conditions on Princes Island have changed sufficiently to cause important alterations in the plant and animal life since Cook's last expedition. This island was always, so far as can be determined from the written history, very sparsely populated and completely uninhabited since the eruption of Krakatau[3] in 1883 killed a number of wood-cutters who occupied a small settlement.

But only some lower parts of this mountainous island were seriously damaged by that eruption and today nearly the whole island is covered by heavy primary forest which gives the impression of having been untouched by man for a very long period; also there are indications that Princes Island contains a very old fauna.

Water is rather scarce on the island and this may have prevented people clearing it, but the most probable explanation is that the area is a very sparsely populated part of Java where there is no scarcity of arable land. In November, 1921 the area was set aside as a natural reserve.

It cannot be excluded that human settlements along the coast in former times created a suitable habitat for *Streptopelia chinensis*, though this dove is by no means a lover of small islands, unlike *Streptopelia bitorquata* which is a typical resident on many islands around Java. One dead specimen of this latter species was found by me on the beach of Princes Island.

For the reasons stated the presence of *S. chinensis* here at the relevant time seems improbable and that *Dissemurus paradiseus* and *Treron curvirostra* should have been collected here may be considered almost impossible. The well known "island drongo" *Dicrurus hottentottus* is of rather common occurrence on Princes Island and on other small islands of the Indonesian Archipelago, but *Dissemurus* is not to be expected in such places.

Together with these birds Prof. Stresemann mentions *Haliaetus leucogaster*, *Butastur indicus*, *Pycnonotus atriceps* and *Orthotomus sepium*. With the exception of *Butastur indicus*, an extremely rare migrant to Java and the surrounding area which I myself never saw alive, these species are known to occur on Princes Island, but the same can be said of nearly all other small islands in the neighbourhood of Java and of Sumatra, as well as Java itself, so that there is no reliable indication that Princes Island was the locality where Cook's expedition obtained the seven birds. Cook's ships may have anchored between Java and Sumatra and some or most of the birds could have been collected on Java's most western peninsula Udjung Kulon (where ships often anchored at that time in order to fetch drinking water), where *Dissemurus paradiseus* is rather common and where *Streptopelia chinensis* also lives[4], but not *Treron curvirostra*. This last species might have been collected on Trouwers or Klapper Island, situated in the Indian Ocean, some miles south of Western Java, which were passed by Cook's ships before they entered the Strait of Sunda. On both these last islands *Treron curvirostra* is rather common and I myself collected ten specimens in some days, though the conditions on those islands which are covered with very heavy forest were extremely difficult. In a following paper I hope to draw special attention to this remarkable pigeon from both these islands.

I cannot therefore agree with Prof. Stresemann's conclusions, not even when it concerns species which are known from Princes Island, until we succeed in laying hands on those old skins, and I did not find *Orthotomus sepium* in which I am particularly interested. There is also a possibility that *Dicrurus hottentottus* and *Treron vernans* were obtained on the island instead of *Dissemurus paradiseus* and *Treron curvirostra* but while there is no proof it seems to me better not to speculate and not to change the localities of origin of the birds discussed above. Even if we succeed in comparing those old skins—obtained nearly 200 years ago—we cannot be optimistic about the results.

Orthotomus sepium

Comparing a good series of *Orthotomus sepium*, collected by me on Princes Island, with birds from Java itself, it became evident that both populations cannot be united into the same subspecies. I think it better not to propose a new name for the birds living on Java, considered until now as the type locality of the nominate race of that Tailor Bird, but to describe as new the population living on Princes Island.

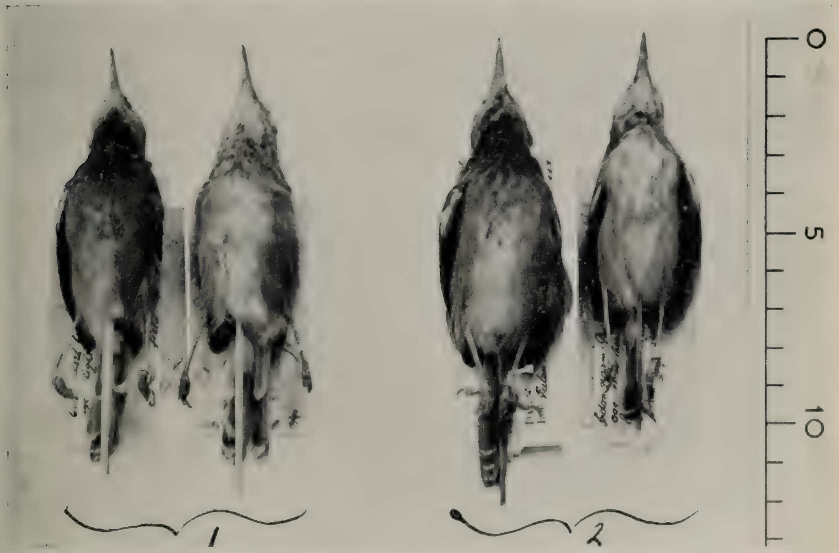
During several collecting trips between 1950 and 1957 to Java's most western peninsula Udjung Kulon, the islands in and around the Strait of Sunda and in the Java Sea, special attention was paid to these small birds which led to very interesting results. Moreover I could study nearly 20 fresh skins collected in the neighbourhood of Bogor (West Java) by the collectors of the Zoological Museum of the Botanical Gardens.

Compared with twelve males from Udjung Kulon, the thirteen skins originating from Princes Island differ by their larger size and by the somewhat lighter grey on the throat.

When comparing the eight females from this island with four females from Udjung Kulon and eight from Bogor, I cannot see much difference, but females originating from both first mentioned localities average less black on throat and foreneck.

On the upper parts, birds from Princes Island differ from those coming from both other localities. They are less green, duller in tone than skins originating from more eastern regions whereas the ferruginous tint on the pileum and sides of the head averages less clear, being much duller which is perhaps also the case with the feathering on the tibia.

Of the smaller islands in and around the Sunda Strait, Princes Island is the only locality besides Udjung Kulon where we found pure representatives of the "olive-greenish group" of this Tailor Bird, in 1821 described by Horsfield as *Orthotomus sepium.*



Orthotomus sepium subspp.

1. Male and female of *Ortkotomus s. sepium* (♂ from Udjung Kulon, ♀ from Bogor)
2. Male and female of *Orthotomus sepium sundaicus* subsp. nov. ♂ ♀ from Princes Island

Though *Orthotomus sepium* from Java's most western peninsula averages darker below than skins from more eastern localities (e.g. Bogor), there seems no reason to separate it because it nearly exactly agrees in size and all other respects. But the difference in plumage and the outstanding difference in size between representatives of both these populations and birds from Princes Island, justify separation of this last population for which I propose the name

Orthotomus sepium sundaicus subsp. nov.

Types:* ♂ Mus. Zoöl. Bogor, No. 20.952, 24th September, 1951, Legon Lintah, Princes Island, West Java; leg. A. Hoogerwerf.
♀ Mus. Zoöl. Bogor, No. 20.944, 12th September, 1951, Tjikantjana, Princes Island, West Java; leg. A. Hoogerwerf.

Range: All over the island; also in the coastal areas but perhaps not in the mangrove-forests.

♂♀ Wings considerably larger than in the typical subspecies, known from Java. Tail much longer, most conspicuous in the males. Bill a trifle shorter than in *sepium.*

On the anterior under parts of the males the new subspecies averages lighter because the grey tint on the throat and foreneck is not so dark as in many birds of the nominate race, whereas the light area on the remaining under parts averages somewhat larger in *sundaicus* and is less washed with yellow.

On the under parts the females are rather similar to *sepium* but they are lighter and less greyish.

The upper parts of both sexes average a trifle duller olive, whereas the ferruginous tint on the pileum and sides of the head averages duller too, as is perhaps also the case on the tibia.

Males from Udjung Kulon seem in plumage somewhat intermediate between Princes Island's population and the birds of the nominate race coming from more eastern localities on Java; they nearly resemble (much larger) *sundaicus* in colour but agree in size with *sepium* and the females seem to average lighter on the throat and foreneck than birds from Princes Island or of *sepium.*

The subspecies *sepium* and *sundiacus* differ in fresh as well as in old skins from *ruficeps* from Java and Sumatra, from *baeus*†, *concinnus*, *ochrommatus*† from the islands off Sumatra's west coast, *palliolatus* from Karimundjawa and *borneonensis* from Borneo because of the olive instead of ashy-grey upper parts and the olive and yellow wash on the under surface in both sexes.

When studying the colour differences of the plumage, special attention was paid to birds whose gonads reached about the same state of development.

Measurements‡*:*

♂♂ *Wing; sepium* (Java): 44, 45, 45, 45, 45, 45, 45, 47, 47, 47, 47, 47, 48, 49; *sepium* (Udjung Kulon): 44, 44, 46, 46, 46, 46, 46, 46, 47, 47, 48; *sundaicus:* 48, 49, 49, 49, 49, 49, 49, 50, 50, 50, 51, 52.

Tail; sepium (Java): 38, 39, 40, 41, 41, 41, 41, 41, 42, 42, 42, 42, 44; *sepium* (Udjung Kulon): 37, 38, 39, 40, 40, 40, 40, 41, 43, 44; *sundaicus:* 45, 46, 46, 46, 47, 47, 47, 48, 49, 49, 49.

Culmen; sepium (Java): 13, 13.1, 13.5, 14, 14, 14, 14, 14.1, 14.1, 14.2, 14.5, 14.9, 15; *sepium* (Udjung Kulon): 12.3, 13, 13.5, 13.5, 13.8, 14, 14, 14.1, 14.3, 14.5, 14.8; *sundaicus:* 12.8, 12.9, 13, 13, 13, 13.3, 13.5, 13.8, 13.9, 14, 15, 15.

---

* All types mentioned in this paper are in the Zoological Museum at Bogor (Indonesia) and paratypes in Leyden Museum for Natural History (Holland).

† The subspp. *baeus* and *ochrommatus* are considered as synonyms of *ruficeps* by Dillon Ripley (*Bull. Mus. Comp. Zoöl.*, 94, 1944, p. 394).

‡ All measurements published in this paper are in mm.

Max. min. and average measurements:

	sepium (Java)	*sepium* (Udj. Kulon)	*sundaicus*
Wing:	44–49	44–48	48–52
	46.14	46	49.58
Tail:	38–44	37–44	45–49
	41.08	40.20	47.18
Culmen:	13–15	12.3–14.8	12.8–15
	14.03	13.80	13.60

♀♀ *Wing: sepium* (Java): 42, 43, 43, 43, 43, 43, 44, 44, 44, 45, 45, 46, 46; *sepium* (Udjung Kulon): 42, 44, 44, 45; *sundaicus:* 46, 46, 47, 47, 48, 48, 49; *Tail; sepium* (Java): 34, 35, 35, 35, 36, 36, 36, 36, 36, 39, 40, 40, 41; *sepium* (Udjung Kulon): 35, 36, 37; *sundaicus:* 38, 39, 39, 40, 40, 42, 42; *Culmen; sepium* (Java): 12.5, 12.6, 13, 13, 13, 13.1, 13.2, 13.2, 13.5, 14.1, 14.2, 14.2, 15; *sepium* (Udjung Kulon): 12.7, 13.2, 13.3, 14.9; *sundaicus:* 13, 13.1, 13.2, 13.9, 14.2, 15.

Max., min. and average measurements:

	sepium (Java)	*sepium* (Udj. Kulon)	*sundaicus*
Wing:	42–46	42–45	46–49
	43.92	43.75	47.29
Tail:	34–41	35–37	38–42
	36.85	36	40
Culmen:	12.5–15	12.7–14.9	13–15
	13.43	13.70	13.73

References §

[1] Stresemann, Erwin, Birds collected during Capt. James Cook's last expedition, *The Auk*, 67, January 1950, pp. 66–88.

[2] Hoogerwerf, A. Some notes about the Nature Reserve Pulau Panaitan (Prinseneiland) in Strait Sunda, with special reference to the avifauna, *Treubia*, 21, February, 1953, pp. 481–505.

[3] Hoogerwerf, A. Notes on the Vertebrate Fauna of the Krakatau Islands, with special reference to the birds, *Treubia*, 22, November, 1953, pp. 319–348.

[4] Hoogerwerf, A. Contribution to the knowledge of the distribution of birds on the island of Java, with remarks on some new birds, *Treubia*, 19, May, 1948, pp. 83–137.

Further notes on the Ashy Tailor Bird, formerly known as *Orthotomus ruficeps* (Lesson) and *Orthotomus cineraceus* Blyth.

All (about 70) skins of this Tailor Bird at present in the collections of the Zoological Museum at Bogor, recently collected by me in the Karimundjawa and Kangean Archipelago, on Bawean Island and on the islands Sebesi, Sebuku and Legundi (south of Sumatra) differ from the (20) skins formerly obtained from Sumatra and Java by the more greyish tint of the upper parts, the clearer, often darker grey of the under parts, most conspicuous in the males and by the purer white on those parts instead of buffy-white as is the case in many birds from Java and Sumatra, most distinct in the females.

---

§ Too much literature was studied when preparing this paper to be quoted below in extenso, so that only the articles directly referred to in the text will be mentioned.

It may be doubted, however, whether much attention should be paid to the differences in the greyish colour in the plumage because in some skins collected on the Karimundjawa islands in 1930 that pure grey tinge changed into the dull greyish colour of old Sumatran and Javan skins. Of these (3) specimens the white on the under parts is dirtier, but this colour remained unchanged in some Bawean skins obtained in 1928. Possibly the wing and tail feathers become lighter and more brownish in older material.

For these reasons, when looking for subspecific characters, attention ought to be focussed on the differences in measurements of wing, tail and bill; on the variation in extension and tint of the ferruginous colour on chin and head; on the differences in tint and extension of the dark parts of throat and foreneck and in the light areas of the under parts, characters which are supposed not to change significantly as a consequence of storage.

In my opinion two different subspecies of the ''ashy greyish group'' of *Orthotomus sepium*, formerly known as *Orthotomus ruficeps* (Lesson) and *Orthotomus cineraceus* Blyth can be recognised on the islands of the Karimundjawa Archipelago and on Bawean Island, whereas the subspecies living on Java and Sumatra differ from those races and also from each other. With the exception of the population living on Sumatra and the Malay Peninsula, which is sufficiently known, all these races will be described below.

When comparing three male birds belonging to Java's population with ten skins from Sumatra, four *borneonensis*, twelve *palliolatus*, twelve from Bawean and eight from Kangean, it cannot be denied that Javan birds have the lightest under surface and an extremely dark throat with very dull ferruginous on the chin and head. The subspecies *borneonensis* shows the least white on the under parts, giving birds belonging to this race the darkest appearance. The differences in plumage between birds from Sumatra and *palliolatus* and the populations from Bawean and Kangean are less striking but they all differ from Javan birds and *borneonensis*.

Seen in a series *palliolatus* has a darker throat and foreneck than Sumatran birds and more white on the lower under parts than Bawean's population of this *Orthotomus*; moreover *palliolatus* has the ferruginous colour on the pileum, the sides of the head and the chin a trifle duller than the average from Sumatra or Bawean. Skins from this last island are somewhat intermediate in colour between those from Sumatra and *palliolatus*, but the lower under parts show still less white than is the case in birds from Sumatra. Kangean birds seem closest to *palliolatus* from the Karimundjawa Islands in the dark throat and foreneck, but they are whiter below than all other subspecies indicated above, excepting birds from Java, which show most white. Finally the ferruginous tint on the head seems lighter in Kangean birds than in *palliolatus* and this also holds good for the brown on the tibial feathering.

The subspecific differences in plumage of the upper parts are less striking but *borneonensis* seems to average darkest, though rather similar to Sumatra's population. The brownish colour on the head is very dark; Javan birds do not differ much from those originating from Sumatra when looking on the upper surface but there is a striking difference in the ferruginous tint of the head, because this is very dull in birds from Java, so the contrast between the pileum and the remaining upper parts is less obvious. The subspecies *palliolatus* differs because of the rather light upper parts and the somewhat duller ferruginous on the sides of the head and the chin than is the case in birds from Sumatra, but this tint does not differ much on the pileum. The difference between birds from Bawean Island and Sumatra is not very striking but skins originating from Bawean average clearer ferruginous on the pileum and around the eyes and they show much of this colour on the chin.

In the females those from Java and Sumatra show the lightest under parts. The difference in those parts of the females of *palliolatus* and the populations living on Bawean and Kangean is perhaps only one in tint of the ferruginous on chin and sides of head and the extent of this colour, which seems clearest and most extensively present in birds from Bawean, whereas Kangean's population shows it dullest and least; also in the feathering of the tibia.

On the upper parts females of *borneonensis* are hardly separable from those originating from Sumatra, but the ferruginous on the sides of the head averages a trifle more vivid in *borneonensis;* Bawean females average decidedly more ferruginous than *palliolatus* but the pileum and remaining upper parts are lighter than in the females of *borneonensis* and those from Sumatra, whereas the females from Kangean are lightest above with the rusty colour on the head and cheeks very dull.

In connection with a recently published paper of Prof. Stresemann[1] Java, neighbourhood of Surabaja, (not Sumatra) must be seen as the *terra typica* of *Orthotomus sepium ruficeps* (Lesson) so that the range of birds hitherto known under this name must be restricted to this island and birds originating from Sumatra and the Malay Peninsula must have another name because they are strikingly different from the population living on Java. The name *Orthotomus sepium cineraceus* Blyth is available for these birds.

In Sumatra these birds were collected by me in the central part of Acheen (Atjeh, North Sumatra) from which it is evident that birds belonging to this subspecies are not restricted to the coastal regions as seems to be the case with Java's *ruficeps* which is replaced in the interior by *Orthotomus sepium sepium.*

Because of the lack of a good description of Javanese representatives of *ruficeps*, it seems important to describe here such birds as compared with the much better known Sumatran skins, hitherto considered as identical with *ruficeps*. Until now too little attention has been given to this remarkable bird. Even Chasen[2] when describing as new the population of this Tailor Bird living on the Karimundjawa Islands, did not compare his new race with Javan birds and without having studied a single skin from this island, he wrote: "This new form is not improbably the bird occurring in the lowlands of the north coast of Java listed by Bartels and Stresemann as *O. s. cineraceus* Blyth." . . .

As no freshly collected material is at hand, the only specimens (5) examined by me were from the Leyden Museum which probably contains the only series of importance in the whole world of *ruficeps* from Java, which is no doubt very rare in collections. Because these skins—originating from the Bartels collection—are nearly forty years old, I will restrict myself to giving only the constant differences when comparing these skins with a rather old series of *cineraceus* collected by me on Sumatra in 1937.

Orthotomus sepium ruficeps (Lesson) is perhaps only found in certain coastal regions, covered with mangrove forest; more inland it is replaced by *Orthotomus sepium sepium*.

The measurements are closest to *cineraceus* from Sumatra but *ruficeps* has a shorter tail in both sexes, but a somewhat longer bill in the males; representatives of both these races belong to the smallest of the species.

♂ Ferruginous colour on chin and tibia averages lighter than in *cineraceus;* throat and foreneck darker, light area below more extensive and a trifle clearer. Ferruginous tint on sides of the head duller, fainter on the pileum so that the contrast between the crown and the remaining upper parts is reduced.

♀ Somewhat lighter above than in females from Sumatra, ferruginous colour in crown is very faint so that the difference in tint with the remaining upper parts is less conspicuous than in *cineraceus*. Light under parts more extensive and clearer white.

Birds from Bawean Island differ from *cineraceus* and *ruficeps* and also from *borneonensis* and *palliolatus;* I propose to separate them under the name:

Orthotomus sepium baweanus subsp. nov.

Types: ♂ Mus. Zoöl. Bogor, No. 22.918, 27th June, 1954, Tandjong Alang-Alang, Bawean Island (Java Sea); leg. A. Hoogerwerf.
♀ Mus. Zoöl. Bogor, No. 22.900, 10th June, 1954, Muara, Bawean Island (Java Sea); leg. A. Hoogerwerf.

Range: Island of Bawean (Java Sea).

♂♀ Wing and tail longer than in all subspecies mentioned above and also larger than representatives of the races *baeus*, *concinnus* and *ochrommatus*, originating from the islands along Sumatra's west coast.

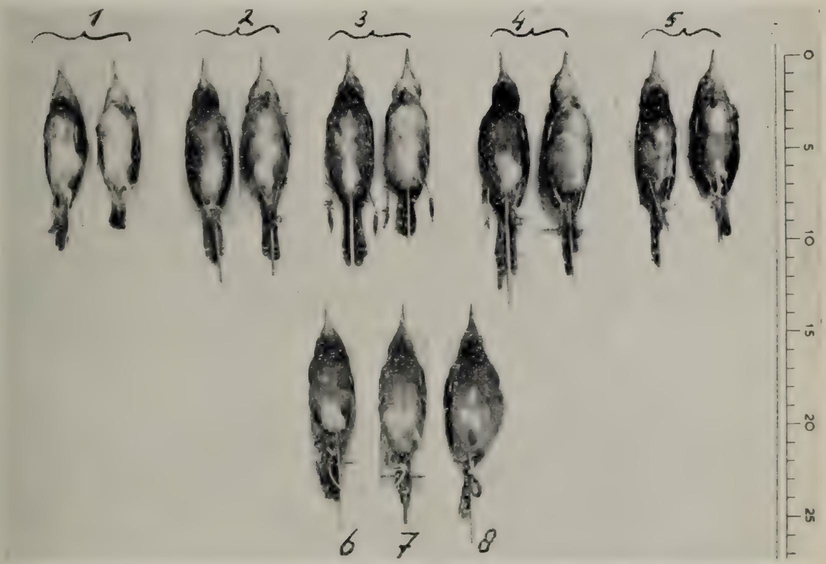
♂ General tone on the under parts darker and purer bluish-grey than in *ruficeps*, *cineraceus* or *palliolatus;* throat and foreneck dark, approaching *ruficeps*. Below less white than in *ruficeps*, *cineraceus* and *palliolatus;* ferruginous tint clear and covering a larger area on the chin, in tint nearly the same as in *cineraceus*, but clearer than in *palliolatus*.

Upper parts a trifle lighter than in these last races, ferruginous on crown and sides of the head rather similar to *cineraceus* averaging somewhat clearer; *baweanus* approaches *borneonensis* but the new subspecies shows more white below and is lighter ferruginous on the head; moreover wing and tail of *baweanus* are much longer.

♀ Foreneck and throat somewhat darker and clearer grey than in the subspecies mentioned above; ferruginous colour on chin and cheeks more extensive than in *cineraceus*, but in tint rather similar, darker than in *palliolatus;* light area below averages purer white than in most *borneonensis*.

Upper parts greyer, wing and tail lighter than in *cineraceus*, rather similar to *ruficeps*. Extension of ferruginous tint on the crown and sides of the head nearly similar to *cineraceus* but a trifle paler, closer to *palliolatus*.

Birds living on the Karimundjawa Islands were separated under the name *palliolatus*, which in size approaches *cineraceus*, but the bill of the female seems longer than in all subspecies mentioned above. The diagnosis can only partly be accepted when looking upon our freshly collected skins from the Karimundjawa Archipelago. The ferruginous tint on the chin and sides of the head—seen in a series—averages just a trifle paler than in *cineraceus* from Sumatra, most obvious on the chin. The crown is not lighter than in Sumatran birds, nor are the throat and chest. On the contrary, they average darker than *cineraceus* in our series. Owing to this character *palliolatus* resembles *baweanus*, differing however by the smaller area of ferruginous on the chin and probably also on the sides of the head and in having more white below. And finally *palliolatus* has a longer bill than *baweanus* and smaller wings and tail.



Orthotomus sepium subspp.

1. *Orthotomus sepium ruficeps* (Java) ♂♀
2. ,, ,, *cineraceus* (Sumatra) ♂♀
3. ,, ,, *palliolatus* (Karimundjawa Islands) ♂♀
4. ,, ,, *baweanus* subsp. nov. (Bawean Island) ♂♀
5. ,, ,, subsp. (Kangean Archipelago) ♂♀
6. ,, ,, *borneonensis* (male) (Borneo)
7. ,, ,, *ochrommatus* (male) (Pagi Islands, W. Sumatra)
8. ,, ,, *concinnus* (male) (Siberut and Sipera Islands, W. Sumatra)

On account of the light tint of the ferruginous parts, *palliolatus* resembles birds from Kangean Archipelago which, however, have this colour still duller. And the males of *palliolatus*, studied by me, have also very clear ferruginous on the tibia, quite different from Kangean birds, and their upper parts average darker than in this last race.

There are more differences which make it probable that the population of *Orthotomus sepium* living in the Kangean Archipelago cannot be united with one of the subspecies discussed above, but the birds we had at our disposal were in a rather poor condition. It is, however, impossible to consider Kangean birds as identical with *ruficeps* as was done by Chasen[3] and others; for the time being it seems better to unite them with *palliolatus*, also on account of the similarity in size.

When studying the *Orthotomus sepium* material present in Bogor's Museum for the first time[4] I thought it possible that the female bird obtained on Kangean by Vorderman in 1892, could be seen as a representative of the "olive-greenish group"; the fresh material does not confirm this supposition.

Skins originating from Sebesi, Sebuku and Legundi Island (Strait of Sunda) are smaller, approaching *cineraceus* but in plumage they seem somewhat intermediate between this last race and *palliolatus*. On account of their similarity in size I consider them to belong to *cineraceus*.

Measurements:

♂♂ Wing; ruficeps: 47, 48, 48; *ruficeps* (measured by Junge): 43, 45; 45, 48, 49, 49; *cineraceus* (Sumatra): 46, 47, 47, 47, 47, 48, 48, 48, 48, 49, *cineraceus* (Sunda Strait): 45, 46, 48, 48, 49, 49, 50; *palliolatus:* 48, 49, 49, 49, 50, 50, 50, 50, 51, 51; Kangean birds: 47, 48, 49, 49, 49, 49, 49, 49, 50; *borneonensis:* 45, 45, 46, 47; *borneonensis* (Chasen and Kloss [5]): 46, 47, 49, 49; *baweanus:* 49, 50, 51, 51, 51, 51, 52, 52, 52, 52, 52, 53, 54.

Tail; ruficeps: 38.5, 41, 44; *ruficeps* (measured by Junge): 34, 35, 36, 41, 43, 44; *cineraceus* (Sumatra): 43, 44, 45, 46, 47, 47, 48, 48; *cineraceus* (Sunda Strait): 39, 40, 41, 43, 43, 46, 47; *palliolatus:* 43, 45, 45, 46, 47, 47, 47, 48, 48; Kangean birds: 43, 44, 44, 44, 45, 46, 48, 48; *borneonensis:* 41, 42, 43, 44; *borneonensis* (Chasen and Kloss[5]): 40, 42, 44, 50; *baweanus:* 45, 49, 49, 50, 50, 52, 52, 53, 54, 55, 55, 55, 59.

Culmen; ruficeps: 13.5, 13,5. 13.5; *ruficeps* (measured by Junge): 13, 13, 14, 14, 14, 14; *cineraceus* (Sumatra): 11, 11.2, 13, 13, 13.3, 13.8, 14, 14.1; *cineraceus* (Sunda Strait): 10, 11, 11.8, 12, 12.1, 13; *palliolatus:* 10.5, 11.9, 12, 12, 12.1, 12.1, 14.3, 14.5, 14.5, 14.7; Kangean birds: 13.2, 13.2, 13.5, 14, 14.1, 14.2, 14.3; *borneonensis:* 12.1, 13.9, 13.9, 14.5; *baweanus:* 12.1, 12.5, 12.7, 12.8, 13, 13, 13.5, 13.5, 13.8, 14.1.

Max., min. and average measurements:

	ruficeps	*ruficeps* (Junge)	*cineraceus* (Sumatra)	*cineraceus* (Str. Sunda)	*palliolatus*	*Kangean* birds	*borneonensis*	*baweanus*
Wing:	47–48 47.67	43–49 46.50	46–49 47.50	45–50 47.86	48–51 49.70	47–50 48.78	45–47 45.75	49–54 51.55
					Chasen and Kloss:		46–49 47.75	
Tail:	38.5–44 41.17	34–44 38.67	43–48 46	39–47 42.71	43–48 46.22	43–48 45.25	41–44 42.50	45–59 52.15
					Chasen and Kloss:		40–50 44	
Culmen:	13.5–13.5 13.50	13–14 13.67	11–14.1 12.93	10–13 11.65	10.5–14.7 12.86	13.2–14.3 13.79	12.1–14.5 13.60	12.1–14.1 13.10

♀♀*Wing; ruficeps:* 44, 45; *cineraceus* (Sumatra): 43, 43, 44, 44, 44, 44, 44, 45, 45, 46; *cineraceus* (Strait Sunda): 44, 45, 45, 45, 46, 46; *palliolatus:* 44, 47, 47, 47, 48, 49; Kangean birds: 46, 46, 47, 47, 47, 48, 48; *borneonensis:* 41, 42, 44, 44, 46; *borneonensis:* (Chasen and Kloss[5]): 42, 43, 44, 44, 44; *baweanus:* 46, 47, 48, 48, 48, 49, 49, 50.

Tail; ruficeps: 34, 35; *cineraceus* (Sumatra): 35, 35, 36, 37, 37, 38, 40, 41; *cineraceus* (Strait Sunda): 36, 38, 39, 41, 42, 42; *palliolatus:* 39, 39, 42, 42, 44; Kangean birds: 37, 40, 42, 42, 42, 43, 44; *borneonensis:* 36, 36, 38, 38, 39; *borneonensis* (Chasen and Kloss): 35, 36, 36, 37, 39; *baweanus:* 40, 40, 42, 43, 44, 45, 45.

Culmen; ruficeps: 11, 13.5; *cineraceus* (Sumatra): 11, 11.1, 11.5, 12.5, 12.7, 12.8, 12.9, 12.9, 13.5; *cineraceus* (Strait Sunda): 11, 11.2, 11.5, 11.8, 12.2, 12.2; *palliolatus:* 12.2, 12.7, 13, 14, 14.50; Kangean birds: 11.1, 12, 12.9, 13.2, 13.3, 13.4, *borneonensis:* 12.1, 12.3, 12.5, 13.2; *baweanus:* 12.5, 12.8, 12.9, 13, 13, 13.5, 13.5.

Max., min. and average measurements:

	ruficeps	*cineraceus* (Sumatra)	*cineraceus* (Str. Sunda)	*palliolatus*	Kangean birds	*borneonensis*	*baweanus*
Wing:	44,45	43–46	44–46	44–49	46–48	41–46	46–50
	44.50	44.20	45.17	47	47	43.50	48.13
				Chasen and Kloss:		42–44	
						43.40	
Tail:	34, 35	35–41	36–42	39–44	37–44	36–39	40–45
	34.50	37.38	39.67	41.20	41.43	37.40	42.71
				Chasen and Kloss:		35–39	
						36.60	
Culmen:	11–13.50	11–13.50	11–12.20	12.2–14.5	11.1–13.4	12.1–13.2	12.5–13.5
	12.25	12.32	11.65	13.28	12.67	12.53	13.03

On an earlier occasion[4] I called attention to the desirability of separating birds now considered to belong to a single "Rassenkreis" (*Orthotomus sepium* Horsf.) into two different species for which are available the names *Orthotomus sepium* Horsfield and *Orthotomus ruficeps* (Less.) because it seemed to me a rather strange phenomenon that pure representatives of two different races of the same species occur within an area of some miles or less as is the case with *Orthotomus sepium* of which *sepium* occurs in and around Djakarta (West Java) and *ruficeps* in the coastal area of this place, without known hybrids from this region. Also on account of the morphological differences between birds of both these subspecies there seems enough reason to reconsider the systematic position of this Tailor Bird.

Prof. Stresemann[6] considered in 1938 some birds of the subspecies *borneonensis* as *Orthotomus ruficeps borneonensis*, but this author could not give me any explanation for doing this, nor do I know of any paper in which this new concept is propagated.

At about the same time, however, Mayr[7] considered *borneonensis*—he wrote *borneoensis*, which is perhaps a slip of the pen—as a race of *sepium*;

in 1939 de Schauensee and Ripley[8] did the same with *baeus* which they compared with *sepium ruficeps;* Chasen[9] in 1941, writing about the Sumatra specimens collected by me during the Leuser Expedition, speaks of *O. s. ruficeps* as did Ripley in 1944[10] and de Schauensee[11] again considered in 1958 birds from Sumatra and Billiton as *Orthotomus sepium ruficeps*, though in all these cases it concerns specimens which could be seen as representatives of *Orthotomus ruficeps.*

But since I wrote my previous paper several specimens of *Orthotomus sepium* were collected on Sangijang Island (Strait Sunda) and on the Island of Bawean, so I suppose they belong to a mixed population, but I am preparing a paper in which I will discuss these birds.

On account of this experience it seems not justified to re-establish the "two-species-concept" though there are several examples in recent literature in which hybridization in (closely related) species did not lead to taxonomic alterations. In this case I prefer to leave the matter to a scientist who is more competent than I feel myself and to whom I am quite willing to give any information.

References:

[1] Stresemann, Erwin. Vögel, gesammelt von Labillardière während der "Voyage á la Recherche de Lapérouse" (1791–1794); *Mittelungen aus dem Zoöl. Museum in Berlin*, 29, 1953, pp. 75–106.

[2] Chasen, F. N. and Boden Kloss, C. On a small collection of birds from the Karimundjawa Islands, *Treubia* 14, 1932–1934, pp. 165–171.

[3] Chasen, F. N. A Handlist of Malaysian Birds, *Bulletin Raffles Museum*, Singapore, No. 11, December, 1935, p. 247.

[4] Hoogerwerf, A. Is het inderdaad *Orthotomus sepium ruficeps* welke langs Java's Noordkust leeft? *Ardea*, 36, 1948, pp. 71–76.

[5] Chasen, F. N. and Boden Kloss, C. On a collection of Birds from the lowlands and islands of North Borneo, *Bulletin Raffles Museum*, Singapore, 4, 1930, p. 93.

[6] Stresemann, Erwin. Vögel vom Flusz Kajan, Nordost Borneo, *Temminckia*, 3, 1938, p. 133.

[7] Mayr, Ernst. Notes on a collection of birds from south Borneo, *Bull. Raffles Museum*, Singapore, 14, 1938, p. 41.

[8] Rodolphe Meyer de Schauensee and Sidney Dillon Ripley. Zoological results of the George Vanderbilt Sumatran Expedition, 1936–1939, Part III—Birds from Nias Island, *Proceedings Acadamy Natural Sciences of Philadelphia*, 91, 1939, p. 409.

[9] Chasen, F. N. and Hoogerwerf, A. The birds of the Netherlands Indian Mt. Leuser Expedition 1937 to North Sumatra, *Treubia*, 18, 1941, p. 97.

[10] Ripley, Dillon. The Bird Fauna of the West Sumatra Islands, *Bull. of the Museum of Comparative Zoölogy*, 94, 1944, p. 394.

[11] Rodolphe Meyer de Schauensee. The birds of the Island of Bangka, Indonesia, *Proc. Acad. Natural Sciences of Philadelphia*, 110, 1958, p. 299.

I have to thank Dr. Dean Amadon, Dr. G. C. A. Junge and Prof. Dr. E. Stresemann for their valuable and much esteemed help when studying the ornithological material from these islands.

- 7 NOV 1962

PURCHASED

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov., sp. nov., subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 5*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 30*s*. (payable in advance) or per copy 5*s*., payable to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1962

20th November, 18th December.

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB

BRITISH MUSEUM
NATURAL HISTORY
10 DEC 1962

Edited by
JOHN J. YEALLAND

Volume 82
No. 9

December
1962

BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 82
Number 9
Published: 6th December, 1962

The six hundred and second meeting of the Club was held at the Rembrandt Hotel, London, on 20th November, 1962.

Chairman: MAJOR-GENERAL C. B. WAINWRIGHT

Members present: 30; Guests: 12; Total 42.

Dr. Norman Moore, Head of the Toxic Chemical Research Unit of the Nature Conservancy addressed the meeting on

Toxic chemicals and conservation.

The use of pesticides has world-wide ecological consequences. The invention of DDT has banished malaria from nearly half of its original range and has rid South America of yellow fever. Recent increases in food production are partly due to pesticides: their success has resulted in a vast increase in human population, increasing insect resistance and damage to many harmless and valuable species.

The chemical revolution in Britain has coincided with other factors which also affect habitat and mortality, *e.g.* the destruction of heathland, hedges and farm ponds, myxomatosis, increased road deaths, etc.

Of the wide range of chemicals used in Britain to-day, it is the highly toxic but non-persistent organo-phosphorus and the highly persistent and toxic chlorinated hydrocarbons which are causing most damage to wild life. Herbicides are used on a much larger scale than insecticides, but their effects are principally ecological.

The present voluntary Notification Scheme by which new chemicals, formulations and uses are screened before use appears to work reasonably well so far as direct effects on wildlife are concerned. But studies on concentrations of chlorinated hydrocarbons in food chains, (*e.g.* Hunt's and Bischoff's study on the destruction of the Western Grebe population on Clear Lake, California, as a result of spraying very low concentrations of the relatively non-toxic chemical DDD) show that toxicity tests alone are inadequate and must be backed by ecological field studies. Resources for carrying out these necessary studies are inadequate.

The Toxic Chemical and Wildlife Section of the Nature Conservancy is studying the long-term ecological effects of chlorinated hydrocarbons, the side-effects of using 2, 4, 5–T (an arboricide of great potential conservation value) and of aquatic herbicides. It is also making background studies on wildlife habitats, is conducting *ad hoc* trials with industry and doing much advisory work.

Notes on the African Finfoot, *Podica senegalensis* (Vieillot) with particular reference to Uganda

by CHARLES R. S. PITMAN

Received 2nd March, 1962

The finfoots—an aberrant family (Heliornithidae) of remarkable, aquatic birds—are found in Central and South America, Africa and South-east Asia, including the East Indies. In Africa there is one resident species which, according to Chapin (18), can be separated, mainly on size, into five races, one of which, the smallest, *Podica senegalensis senegalensis* occurs in Uganda. There appears to be considerable overlap in size and coloration of these races, as well as some confusion between the similarly coloured though differently sized adult females and juvenile males, the latter being the larger, so one is tempted to wonder how much justification there is for so much separation, based to a great extent, on a clinal size difference.

Podica senegalensis is widely distributed from Senegal, in the west, to north-eastern Congo, northern Uganda and north-eastern Kenya in the east, and southerly throughout the continent to South Africa. For a long time considered a rarity, it is now known that it is by no means uncommon where local conditions are suitable, but it is so secretive and elusive that it is more likely to escape detection than come to notice. This is well illustrated by Sir Frederick Jackson's experience at Entebbe, Uganda, where for some years he was not aware of the finfoot's occurrence, although he was constantly bird-watching in its haunts.

In certain respects there is a resemblance between the finfoots and the coots, rails, grebes, ducks, cormorants and darters, but they are nearest the Rallidae. The finfoot has similarly curiously lobed or fringed feet as the coot; like the coot, too, the toes terminate in a sharp claw. The voice of the finfoot is similar to the guttural cry ending in a squawk or squeak of certain rails, and when running on land the gait can be rail-like (22: p. 137). It might be mistaken for a grebe in the water, but the rhythmic forward movement of its head and neck in unison with its paddling should identify it. It also has a general cormorant-like appearance, and at times especially when alarmed it will, darter-fashion, submerge its body leaving only the long neck and head above the water. Its somewhat slender build is well adapted to aquatic life, and as in most diving birds the plumage is close.

In all the African races the females are considerably smaller than the males.

Podica senegalensis senegalensis (Vieillot), West African or Senegal Finfoot. According to Praed and Grant (8: p. 305) the Uganda finfoot is *Podica senegalensis petersi* Hartlaub, but Chapin in a further revision (1954) of the African finfoots shows that the Protectorate's representatives belong to the nominate race. At the same time he describes from Kenya Colony, east of the Rift Valley, a new and larger race which he designates *Podica senegalensis somereni*. Apart from the factor of size, there are some slight plumage differences between most of these races. The finfoot is probably widely distributed throughout Uganda, up to perhaps the 6,000 feet level, along rivers, lakes and other waters where there is suitable cover. Jackson (7: pp. 311–312) observed it at Entebbe: and between 1925 and 1950, I saw one on the River Udek in Lango (22: p. 137); another in the shelter of cover by the Ankole bank of the Kazinga Channel, north-east of the causeway (1: p. 24, para. 172); and the bill and feet of a third were sent to me from the Budongo forest, in Bunyoro. More recently, in 1961, the finfoot has been recorded on the River Kibaa, a tributary of the River Nile, in the Murchison Falls National Park, and another, under the cover of an overhanging bush, on one of the wallows on the Toro (West) side inland from the Kazinga Channel, in the Queen Elizabeth National Park. Also, Mr. Martin Woodcock, who visited Uganda in January 1962, observed one of a pair which frequent the River Kagera (Uganda/Tanganyika boundary) several miles downstream of Merama Hill. All these localities indicate its widespread distribution throughout Uganda. I have also twice seen individuals of the larger race *P. s. petersi* on the River Kafue, in Northern Rhodesia.

The finfoot is a skulker and is not easily observed, for it is associated with the denser wooded littoral of the waters it frequents and it is most active in the early morning and evening.

I can find nothing in the literature concerning migration—which is unlikely—or local movements, which in some localities are a result of low water conditions.

It must be uncommon on Lake Victoria, for I never once came across it during a period of more than twenty years when I was constantly investigating the forested shores, both by water and land. It is not gregarious and is usually seen solitary, a female with one or two juveniles, and occasionally a pair.

Much valuable knowledge about the habits of this elusive bird has been derived from many carefully recorded observations. Whenever I have seen a finfoot undisturbed, it has been swimming with the body fairly low in the water; but as soon as it became alarmed it semi-submerged or even fully submerged, with only the long neck and head exposed, darter-fashion. When swimming in deep water the body is mainly submerged. Although an expert diver, I have never seen it dive, which it may resort to more when feeding. Priest (16: p. 71) records that an adult female and a large juvenile when alarmed instantly dived and swam under water.

The Udek example (22: p. 137) when first observed was swimming in a series of river pools and reminded me of a slightly-built duck. It swam rapidly, which it preferred to running rail-like through and under the overhanging cover at the water's edge, until unduly disturbed.

As a general rule, unless feeding, the finfoot keeps in the shelter of cover where its dark plumage is added protection.

Dr. Serle (3: p. 163) gives an excellent description of finfoot behaviour as observed early in the morning on a crater lake in British Cameroon "They skulk at the lake edge in the shadows of the overhanging foliage, and are shy. On the approach of danger they swim away, the body submerged except for the head and neck, deeper into the shadows, or clamber ashore and disappear in the forest undergrowth; or they may rise, and scurrying over the lake, with wings and feet beating the surface describe a wide arc before coming to shore again; or rarely, they rise cleanly and after a shorter or longer flight, drop as cleanly into the lake again". These observations seem to cover most aspects of its flight and alarm behaviour, except that of diving, but Serle further records that on another occasion "one bird was fishing out in the open lake a hundred yards or more from the shore. As it swam its head and neck inclined forward rhythmically with each stroke of its feet. It lay low in the water with the tail just visible parallel to the surface. The red bill was pointed slightly upwards. It dived effortlessly, in a moment vanishing from sight without any splash".

When disturbed the finfoot patters along the surface with beating wings, dangling feet and dragging tail, to take refuge in the shelter of the nearest cover. But when frightened it seems reluctant to dive. It roosts in overhanging bushes a few feet above water level (16: p. 71), but in order to get up into a bush to roost or to its nest it has to be able to make use of a suitable branch leading out of the water (21: p. 35, No. 150). Jackson (7: p. 311) watched one make several futile attempts to climb on to ambatch branches, until it eventually found one suitable "on which it waddled like a Penguin". Then it sat half upright and preened itself. It commonly sits on boughs or tree trunks overhanging the water. Priest (16: p. 67) records that at a nest found by H. Burrows, the female was sitting on the nest asleep, with her head reclining on her back, while the male was perched on a branch close to the nest. Its extraordinarily stiff, long tail feathers aid it in climbing. It can run surprisingly fast, as well as traverse reeds, swamp vegetation and dense cover with rapidity. A wounded bird has been seen to climb up a bank out of the water and then, rather like a duck, nimbly ascend a small tree to ten or twelve feet above water level (4: p. 39). An undisturbed male watched by Priest (16: p. 72) walked like a duck. 'Water-Treader', one of its popular names in South Africa, is easy to explain; but I do not know the origin of 'Sun-Grebe'.

As it is always so much on the alert it is most difficult to shoot. Should anyone be fortunate to obtain a close-up view, its strange appearance—especially on land—should identify the finfoot. It is generally dark brown above, glossed greenish-black on the head, back of neck and mantle, and spangled with conspicuous, rather round, whitish spots: below, white, slightly barred brownish and buff on the flanks: under tail coverts mottled brownish. Behind the eye and down each side of the neck there is a broad white stripe. The male has a grey throat; in the female it is whitish. The blackish tail of 18 narrow tapering feathers is fan-like. The rectrices have very stiff pale shafts, and white tips when freshly moulted; but the tips soon become worn and frayed from constantly dragging along the water surface when in flight. The wings are surprisingly long and pointed. There is a blunt spur or spike, which in the juveniles is fine, curved and needle sharp, on the carpal joint. The long, almost straight bill, with a large nasal slit nearly one quarter the length of the culmen, is coral red, rich orange-red or scarlet; in the female it is whitish below; the tip and culmen are blackish or dusky. The feet are coral red, and the middle toe is pectinated along the inner edge. The iris of the male is brown or reddish-brown: that of the female is usually paler. The juvenile males are similar to the adult female, but larger and much browner above with a very few buff spots: the underparts are pale buff marked with rust brown, particularly on the breast. An adult male *petersi* shot by Priest (16: p. 70) weighed 1 lb. 15 ozs.

The Cameroon race *P. s. camerunensis* has a tendency to melanism. The downy chick of typical *senegalensis* is generally dark brown above, with rufous fore-crown: below, white except for a band of light brown or cinnamon across the breast. On hatching the chick takes to the water and the lobes on its tiny feet are already well-developed.

The finfoot's food consists mainly of water insects—it has been seen to catch a butterfly—small water molluscs, crabs, shrimps, prawns, frogs and sometimes small fish; but fish are evidently a rare item in its diet. There is usually a little grit in the stomach.

Jackson (7: p. 312) watched one feeding amongst the water-grasses at Entebbe picking insects off the stems.

No-one has recorded how the finfoot feeds, whether it remains mainly on the surface using its long neck and bill, or does it dive a lot. One wonders what is the daily insect and other aquatic life consumption of the finfoot in contrast to the voracity of cormorants and darters. I have not found any reference to the colour of the yolk of the finfoot's egg; this could be an indication of the principal food constituents.

Neither Jackson nor I ever heard any cry, but apart from a certain amount of inconclusive conjecture there are some definite records. According to Bates (20: p. 75) "A bird caught and brought to me alive uttered a low growl that was accompanied by a trembling of the whole body, and passed into a weak squawk with open mouth". Rather similarly, Priest (16: p. 68) quoting Sclater "caught two of these birds in traps set for otters; when taken from the traps they made an extraordinary noise like the growling of a wild beast, and were very savage".

Benson (19: p. 263) records that an African's description of the finfoot's cry sounded like 'm-m-m, p-r-r-r' (respectively deep and explosive) repeated many times and strikingly loud. This cry is to be heard between December and April (in Northern Rhodesia), which coincides with the latter part of the breeding season. It tallies with Roberts' (2: p. 112) "a low reiterated booming sound".

The nest is a shallow saucer or almost flat platform about twelve inches in diameter, of twigs and reed stems, lined with a little coarse grass, leaves or reeds—one which I found in October in a bush overhanging the River Kafue, in Northern Rhodesia, was lined with a soft, green, moss-like material. The nests are in bushes or on tree branches overhanging water and several feet above the water level. They are almost invariably placed on top of flood refuse, indicating that breeding, which may take place before, during and occasionally after the rains, must avoid the height of the flood season.

From the little data available—mainly of the race *petersi* in Southern Rhodesia—it would appear that C/2 is the normal set, though I have (*in litt.*) been given by H. M. Miles one Southern Rhodesia record of C/3, but without measurements. Belcher (14: p. 71) records C/2 taken in South Africa "nearly even-ended, large for the bird, and brown with darker markings".

No eggs seem to have been found in West Africa or East Africa, though Chapin (5: p. 37) describes from the north-eastern Congo an oviduct egg of the moninate race; he also suggests that, as indicated by this ovary, this must be the last egg of a set of three.

The eggs are rather bustard-like but glossy; the ground colour varies from brown, drab, creamy or buff to pale buffy-green; blotched, spotted and streaked—sometimes with heavy concentrations on top of large end—

with dark umber, red-brown and purplish-brown. The oviduct egg (5: p. 37) measured 50 x 38 mm., and was whitish, faintly tinged buff, with rufous spots all over varying from pin-points upwards, thickest and largest at the larger end. The average measurements of eleven eggs is 54.74 x 40.6 mm., with a range 52.0–58.0 mm. x 38.0–42.1 mm.

In the Lake Victoria region I would expect the main breeding season to coincide with the long rains, perhaps from March to June. But in northern Uganda where the rivers, excepting the Nile, are almost non-existent at the end of the dry season, breeding is unlikely before May or June. In the Ituri region of the neighbouring north-eastern Congo, Chapin (5: p. 37) collected a male in breeding condition at the end of April; shot the female with an oviduct egg on 22nd May, and examined another female in breeding condition on 22nd July. Further, he records "That the breeding season coincides with rains and high water in the rivers is confirmed by our three young specimens secured in September and December."

References:
[1] *Annual Report of the Game Department, Uganda Protectorate*, 1948.
[2] McLachlan, G. R. and Liversidge, R. Revision of Roberts' *Birds of South Africa*, 1957
[3] Bannerman, D. A. *Birds of Tropical West Africa*, Vol. VIII, 1951.
[4] Bannerman, D. A. *Birds of Tropical West Africa*, Vol. II, 1931.
[5] Chapin, J. P. *Birds of the Belgian Congo*, Part II, 1939.
[6] Friedmann, H. *Bulletin* 153, *United States National Museum*, 1930.
[7] Jackson, Sir F. J. *Birds of Kenya Colony and the Uganda Protectorate*, Vol. I, 1938.
[8] Mackworth-Praed, C. W. and Grant, C. H. B. *Birds of Eastern and North-eastern Africa*, Vol. I, 1952.
[9] Cave, F. O. and Macdonald, J. D. *Birds of the Sudan*, 1955.
[10] Gyldenstolpe, Nils. Zoological Results of the Swedish Expedition to Central Africa, 1921. *Kungl. Svenska Vetenskapsakademiens Handlingar*. Tredje Serien, Band I, No 3, 1924.
[11] Prigogine, Dr. A. Contribution à l'étude de la Faune ornithologique de la region à l'ouest du lac Edouard. *Annales du Musée Royal du Congo Belge*, Tervuren (Belgique). Série in 8°, *Science Zoologiques*, Vol. 24, 1953.
[12] Buxton, P. A. *Ibis*, 1953.
[13] Berlioz, J. *Bulletin du Museum*, Paris, VI, 1934.
[14] Belcher, C. F. *Birds of Nyasaland*, 1930.
[15] Pitman, C. R. S. *A Report on a Faunal Survey of Northern Rhodesia*, 1934.
[16] Priest, C. D. *Birds of Southern Rhodesia*, Vol. II, 1934.
[17] Benson, C. W. *Ibis*, July 1940.
[18] Chapin, J. P. Races of the African Finfoot. *American Museum Novitates*, No 1659, 25th May, 1954.
[19] Benson, C. W. Some additions and corrections to *A Check List of the Birds of Northern Rhodesia*, No. 2. *Occasional Papers*, National Museum, Southern Rhodesia. No. 23 B, 27th July, 1959.
[20] Bates, G. L. *Handbook of the Birds of West Africa*, 1930.
[21] Priest, C. D. *Eggs of Birds Breeding in Southern Africa*, 1948.
[22] Pitman, C. R. S. *The Bateleur*, 1929.

On *Aegithina tiphia* (Linn.), the Common Iora, from Udjung Kulon, western Java

by A. Hoogerwerf

Received 26th January, 1962

When ten males belonging to the subspecies *scapularis* are compared with a similar series of *micromelaena** and some specimens of *viridis* and *aequanimis* it is not easy to separate birds belonging to *scapularis* and *viridis* on differences in the colour of the under parts, but *micromelaena* has decidedly more yellow on those parts, whereas *aequanimis* is still yellower. But the females do not differ much on the under surface, excepting the only female of *aequanimis* before me which is much yellower than the females of the other three races. The males of *Aegithina viridissima* are separable at once from birds belonging to the ''Rassenkreis'' of *tiphia* on account of their leaf-green under parts.

---

* Mrs Hall[3] places *micromelaena* in the synonymy of *horizoptera*.

On the upper parts and wings the differences in the males are rather striking: *micromelaena* has nearly black wings and tail, whereas *scapularis* has the wings much lighter and has a green tail; moreover the green in the plumage is darker in *micromelaena*. The subspecies *viridis* is somewhat intermediate between both these races, not only in the tint of the wings but also on the upper surface; the tail is black only in one of the four skins before me. The three males of *aequanimis* nearly agree with *viridis* on the upper parts and also somewhat with *micromelaena*, but they differ from both because of more yellow on the forehead.

The females of all four subspecies indicated above are difficult to separate when comparing the upper surface but the females of *viridis* and *micromelaena* average a trifle yellower and the single skin of *aequanimis* shows still more yellow.

The males recently secured in Udjung Kulon agree rather well with males of *scapularis* from more eastern localities on the under parts, but the under tail is much darker which makes them rather similar to one of the four males of *viridis*, showing also a dark under tail. From males of *micromelaena* and *aequanimis* these Udjung Kulon males differ because of the less yellow under parts.

The females of this region agree rather well with *scapularis* but they may average greener below, especially on the flanks.

In the greenish colour of the upper surface the males from Udjung Kulon do not differ much from *viridis* which means that they are darker than *scapularis* and lighter than *micromelaena* and perhaps also lighter than the average *aequanimis*. Eight birds of the ten before me have a black upper tail and in both other males the tail is darker than in *scapularis*. The dark colour of the wings is intermediate in tone between *micromelaena* and *viridis*, agreeing well with one of the three *aequanimis* before me, but birds belonging to this race can be separated on account of the striking clear yellow on the forehead.

The six females from Udjung Kulon can hardly be separated from the subspecies mentioned above but the wings seem to average darker and the yellow edges on the wing feathers broader and more obvious than in these other races.

From the above it is evident that the population of this bird living in Udjung Kulon cannot be included into one of the subspecies mentioned above; not in *scapularis* on account of the dark upper parts, black wings and tail in the males, not in *micromelaena* because of the much less yellow under surface, the lighter green of the upper parts and the less intense black on wings and tail, not in *viridis* because of the darker wings and probably also tail and not in *aequanimis* because of the much less yellow under parts and less yellow on the forehead. Moreover it is evident from the measurements given below that Udjung Kulon birds rather agree in wing and tail length with *scapularis* and *viridis* but that they are smaller than both remaining subspecies.

Stresemann[1] and Mayr[2] consider *Aegithina tiphia damicra* from South Borneo as a synonym of *viridis*. Stresemann described representatives of the species from North Borneo as *Aegithina tiphia chaseni* which should differ from *viridis* by having golden yellow instead of greenish under parts. more yellowish-green upper parts, golden-yellow instead of olive-green upper head, deep black instead of dull black wing-coverts and by being larger. But Mayr does not mention *chaseni* when he considers birds from North Borneo identical with *aequanimis* with which they should perfectly agree, not only in size but in colour (compared in large series of both sexes).

Six males and five females recently obtained from East Borneo and sent by me to Prof. Stresemann should belong to *viridis*. The males differ from Udjung Kulon birds on account of the clearer yellow on the under parts and because they have less yellow on the remiges and wing-coverts. Moreover the green on the upper surface is somewhat darker than in birds from Udjung Kulon. The females of these fresh *viridis* average in being somewhat clearer yellow but they do not differ much from females of this last area of which Prof. Stresemann gave me as his opinion: "*Aegithina:* Ihre neue Subspecies ist gut kenntlich".

Without losing ourselves in a discussion concerning the name of birds originating from North Borneo, it is evident that the population of *Aegithina tiphia* living in Udjung Kulon cannot be considered identical with those birds, not only because North Borneo's *Aegithina* is larger but also on account of their golden-yellow under parts without a greenish tint and because of that colour on the crown.

The birds secured in Udjung Kulon had the gonads undeveloped excepting some males which had large testes: 5–8 mm., showing, however, no important differences in plumage when compared with those other males as should be the case in accordance with Mrs. Hall[3] who found rather important variations in the non-breeding plumage of birds belonging to the "Rassenkreis" of *Aeginthia tiphia*. Judging from a male and a female, collected in Udjung Kulon in 1932 and 1942, the post-mortem discolouring seems not very important.

Therefore it is evident—as I supposed earlier[4]—that *Aegithina tiphia*, inhabiting Udjung Kulon cannot be united with one of the existing races which makes it desirable to separate this population, for which I propose the name:

*Aegithina tiphia djungkulanensis** subsp. nov.

Types: ♂ Mus. Zoöl. Bogor, No. 23.523, 8th July 1955, Tandjong Alang-Alang, Udjung Kulon (West-Java); leg. A. Hoogerwerf.
♀ Mus. Zoöl. Bogor, No. 23.530, 9th July 1955, Tandjong Alang-Alang, Udjung Kulon (West-Java); leg. A. Hoogerwerf.

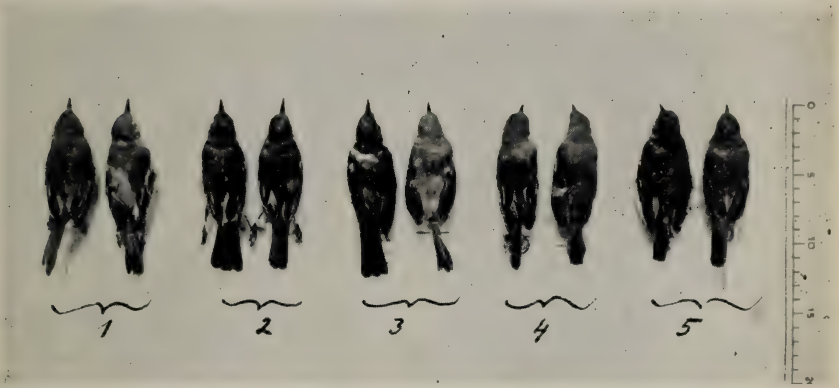
♂♀ In size nearly similar to *Aegithina tiphia scapularis* and *viridis* but the male has a longer bill and the tail averages shorter; the female has a somewhat longer tail than both these subspecies; the new race is smaller than *micromelaena*, *aequanimis* and *chaseni*.

♂ Green of the upper parts a trifle lighter than in *viridis* and *micromelaena* but darker than in *scapularis* of which the male has a green instead of a black tail as is the case in *djungkulanensis*. Remiges and wing-coverts darker than in *scapularis* and also averaging darker than in *viridis*, but not so black as in *micromelaena* in which subspecies—however—the wings show less yellow. Yellow edges on remiges of *djungkulanensis* average a trifle clearer than in the other races.

---

* The Sundanese name of Udjung Kulon is Djungkulan, which means land which comes to a dead end.

Lower parts, sides of the head, neck and body similar to *scapularis* because these parts are not clear yellow but olive-yellow; less white on the lower belly than in *viridis*. On account of the more greenish tint on the under surface the new subspecies not only differs from most *viridis* and *micromelaena*, but also from *aequanimis* and *chaseni: singapurensis* known from South Malacca seems much darker above and *horizoptera* from Nias is said to have yellower under parts and lighter wings and should measure larger.



AEGITHINA TIPHIA subspp.
1. *Aegithina tiphia scapularis* (Java)
2. „ „ *djungkulanensis* subsp. nov. (Udjung Kulon)
3. „ „ *micromelaena* (Sumatra)
4. „ „ *aequanimis* (Borneo, part)
5. „ „ *viridis* (Borneo, part)

♀ Plumage not very different from *viridis* or *scapularis* but a trifle darker above than in *scapularis;* wing somewhat darker than in all other subspecies examined by me, but I did not see *singapurensis* and *horizoptera*. Yellowish edges on the remiges broader and clearer than in all other skins studied, in which the yellow edges are less conspicuous. Tail is green as in the other females before me.

Notwithstanding the differences mentioned above, females of *djungkulanensis* do not differ much from *scapularis* or *viridis*, as may be shown by the fact that a female of the new race originating from Udjung Kulon was classified by Chason as *scapularis*.

A freshly collected male from the village of Tamandjaja, about five miles east of Udjung Kulon seems much closer to *scapularis* than to *djungkulanensis* but it is a trifle darker above than *scapularis* and the tail is a trifle darker too, rather similar to a single *djungkulanensis* before me.

A female from the same locality seems somewhat closer to birds of the new race because of its darker upper surface and wings. This skin shows more white on the lower flanks than any other female of both these subspecies. From this material it seems justified to restrict the type locality of the new race to Udjung Kulon and to consider as its most eastern boundary the very narrow ''bottle-neck'' by which this game-reserve is separated from the remainder of Java.

Measurements:

♂♂ *Wing; scapularis:* 59, 61, 61, 62, 62, 62, 63, 64; *viridis:* 59, 60, 60, 62; *micromelaena* 61, 62, 62, 62, 62, 63, 64, 65, 65, 66; *aequanimis:* 62, 64, 65; *djungkulanensis:* 59, 61, 61, 61, 62, 62, 62, 62, 62, 62;

Tail; scapularis: 46, 46, 47.5, 48.5, 49.5, 50, 51.5, 51.5; *viridis:* 44, 44.5, 46.5, 47; *micromelaena:* 43, 44.5, 45.5, 46.5, 46.5, 48, 48, 48, 49, 49.5; *aequanimis:* 46.5, 50, 51.5; *djungkulanensis:* 42, 42, 43.5, 44, 45, 45, 46.5, 47, 48, 50;

Culmen; scapularis: 11.5, 12, 12, 12.5, 12.5, 13, 13, 14; *viridis:* 11.5, 13, 13.5, 14; *micromelaena:* 13, 13.5, 14, 14, 14.5, 14.5, 14.5, 14.5, 15.5; *aequanimis:* 13.5, 15, 16; *djungkulanensis:* 12.5, 12.5, 13, 13.5, 14, 14.5, 14.5, 14.5, 15, 15.

Max., min. and average measurements:

	scapularis	*viridis*	*micromelaena*	*aequanimis*	*djungkulanensis*
Wing:	59–64	59–62	61–66	62–65	59–62
	61·75	60·25	63·20	63·67	61·40
Chasen & Kloss [5]: (17♂)		62–67			
		63·25			
Tail:	46–51·5	44–47	43–49·5	46·5–51·5	42–50
	48·81	45·50	46·85	49·33	45·30
Chasen & Kloss [5]: (17♂)		46–55			
		48·47			
Culmen:	11·5–14	11·5–14	13–15·5	13·5–16	12·5–15
	12·56	13	14·22	14·83	13·90

♀♀ Wing; *scapularis:* 60, 62, 62, 62, 62; *viridis:* 57, 58, 58, 60; *micromelaena:* 61, 63, 63, 64, 64; *aequanimis:* 63; *djungkulanensis:* 57, 60, 60, 61, 62.

Tail; *scapularis:* 43.5, 46.5, 46.5, 48, 48.5; *viridis:* 45.5, 46, 46.5, 47; *micromelaena:* 46.5, 48, 49.5, 49.5, 50; *aequanimis:* 44; *djungkulanensis:* 48, 48, 48.5, 52.5, 53.

Culmen: *scapularis:* 11, 12, 12, 15, 15; *viridis:* 13, 13, 13.5, 14; *micromelaena:* 14.5, 15, 15, 15, 15.5; *aequanimis:* 15; *djungkulanensis:* 12, 13, 13, 14.5.

Max., min. and average measurements:

	scapularis	*viridis*	*micromelaena*	*aequanimis*	*djungkulanensis*
Wing:	60–62	57–60	61–64	63	57–62
	61·60	58·25	63		60

	scapularis	*viridis*	*micromelaena*	*aequanimis*	*djungkulanensis*
Chasen & Kloss [5]: (8♀)		59–63 60·63			
Tail:	43·5–48·5 46·60	45·5–47 46·25	46·5–50 48·70	44	48–53 50
Chasen & Kloss [5]: (8♀)		45–50 49·25			
Culmen:	11–15 13	13–14 13·38	14·5–15·5 15	15	12–14·5 13·13

References:

[1]. Stresemann, Erwin. Vögel vom Flusz Kajan, Nordost Borneo, *Temminckia*, 3, 1938, p. 126.

[2]. Mayr, Ernst. Notes on a collection of Birds from south Borneo, *Bull. Raffles Museum*, Singapore, 14, 1938, p. 35-36.

[3]. Hall, Mrs. B. P. The taxonomic importance of variation in non-breeding plumage in *Aegithina tiphia* and *A. nigrolutea. The Ibis*, 99, 1957, pp. 143–156.

[4]. Hoogerwerf, A. Over een tot nu toe voor Java onbekende vorm van *Aegithina tiphia*, *Ardea*, 37, 1950, p. 186-7.

[5]. Chasen, F. N. and Boden Kloss, C. On a collection of birds from the lowlands and islands of North Borneo, *Bull. Raffles Museum*, Singapore, 4, 1930, p. 61.

A wild-shot Wigeon x European Green-winged Teal

(Exhibited to the B.O.C., March, 1962)

by JAMES M. HARRISON

Received 19th March, 1962

On 2nd December, 1961 a duck was shot on Hayling Island, Hampshire, and was at once recognised by Mr. D. R. Pycroft as a hybrid between a Wigeon, *Anas penelope* Linnaeus and a European Green-winged Teal, *Anas crecca crecca*, Linnaeus. The bird was a drake.

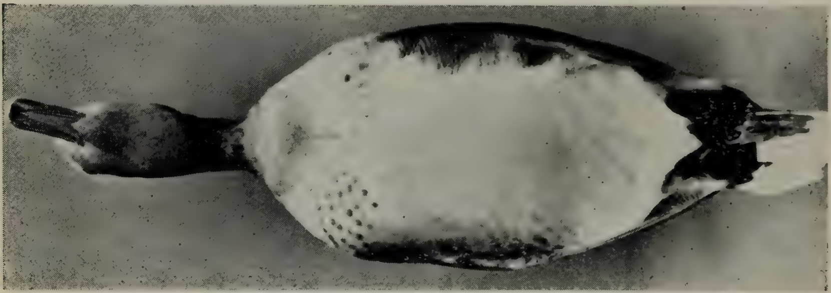
This is an instance of interspecific hybridisation in which the progeny may be described as strictly intermediate between the parent species in so far as colour and pattern are concerned. However, in size this individual approaches that of a Wigeon, being almost as large as some of the smaller sized ducks of that species. As can be seen from the accompanying plates, the head is predominantly that of a drake Teal, but the rather rich chestnut of that species is replaced by a lighter shade of bay and the pattern, although very close, is not quite faithful, for the light anterior line which runs from above and in front of the eye to demarcate the base of the bill and continue below to form a light border to the dusky chin patch is vestigial and does not extend to enclose the patch, as in most specimens, while this latter character is more extensive. The green surrounding the eyes and extending backwards to the nape is also lighter.

The breast shield is of the same vinaceous colour as in the Wigeon and is markedly spotted. As a variant both a spotted and a barred breast shield have been recorded in that species (Harrison 1956, 1957) while, of course, spotting of the breast in the Teal is invariable.

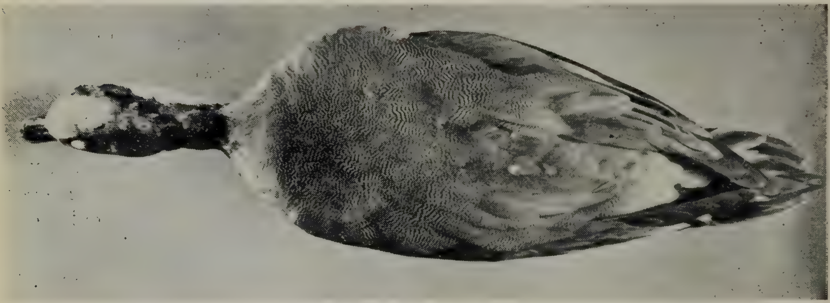
The rest of the underparts are white as in both species while the black tail-coverts are bordered very narrowly by the palest buffy-yellow. This character again shows a strict intermediacy.

The flanks are closely vermiculated dusky-grey and white, The specimen lacks the blackish vertical lines embracing the root of the tail as seen in the Teal and there is the merest trace of pale buffy wash in this situation.

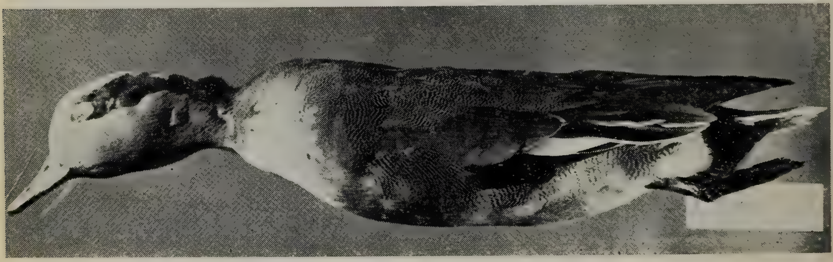
The upper tail-coverts are variegated buff-edged sepia; the rectrices pale sepia narrowly edged greyish-white. The central pair are slightly elongated but far less so than in the Wigeon.



Wigeon X Teal Hybrid. Ventral view.
Note: The pallor on the crown and on the sides of the head is due to reflection, not to colour (see description).



Wigeon X Teal Hybrid. Dorsal view.
Note: The pallor of the crown is due to reflection and not to colour, (see text description)



Wigeon X Teal Hybrid. Lateral view.
Note: The pallor of the sides of head is due to reflection and not to colour, (see text description).

The wing characters are of interest, the smallest coverts are a dusky grey, the medium coverts become paler, while the greater coverts are paler still. Immediately above the speculum which is bright bottle-green as in the Teal, there is a broad wedge-shaped dark slate-grey marking, and the lower edge, as also that of the major coverts is narrowly edged with bay. The lower border of the speculum is a bluish-black wedge-shaped band. The innermost scapulars are dusky grey, edged paler grey; the next proximal grey with broad black outer vanes narrowly edged with white which, near the tips, becomes bay. The ultimate series near the speculum, in the folded wing are of a light pearl-grey, with rather broad black borders and with thin whitish edges.

The hybrid also lacks the buffy-yellow inner-most scapulars of the Teal but has the long black and white scapulars of the Wigeon as can be seen from the lateral view of the specimen.

Measurements in mms.: Averages: (to the nearest decimal, six measured)

	Hybrid ♂	*Wigeon* ♂	*Teal* ♂
wing	222	262	183·5
bill length	37	34·7	36
width at nostrils	14·5	15·3	12
depth at nostrils	13·5	14	12·5
nail	7	8·8	7
tarsus	35·5	38·5	29
middle toe with claw	48	48·6	38
tail	84	99·8	68

These measurements demonstrate intermediacy.

To summarise, the overall picture of this bird is that of a first winter drake Wigeon with the head and neck of a Teal.

Mr. Peter Olney, to whom the viscera were sent, reported that the bird had been feeding as do Wigeon, *i.e.* grazing and actually during the preparation of the specimen it was noted as having the same strong smell of that species and, as already stated, it was associating with Wigeon when shot. Unfortunately the stomach was virtually empty but Mr. Olney reports that there were a few traces of grass, mostly leaf.

DISCUSSION

Much study of hybridisation is needed to disclose fully the underlying principles involved. One must also reflect on the curious "bridling" of the face, though absent in this specimen, which is produced at times by various interspecific duck crosses, notably those in which Shoveler, Wigeon and Teal are parental, and more particularly that same pattern in the Teal in the absence of any evidence of hybridisation. This condition is ascribed by the writer to autophoric reverse mutation (1953).

One of the most difficult points to decide when assessing a duck hybrid of which the parentage is unknown is that of hazarding a guess as to which way the cross went. The writer at present knows of no certain way, though the tendency is always to presume that the predominant characters, if the specimen is a male as this one is, are attributable to the male parent; this need not necessarily be so. Hybridisation demonstrates a degree of pleomorphism; this is exemplified by two Common Pochard, *Aythya ferina* (Linnaeus) x Tufted Duck, *A. fuligula* (Linnaeus) hybrids, both predominantly Tufted Duck in appearance, despite the fact that the male parent was known to be the former species, as they were bred in captivity and are now in my collection. This same interspecific cross has recently (1961) given rise (it is believed) to individuals resembling, among other species, the Lesser Scaup, *A. affinis* (Eyton). The biological laws determining such issues are certainly obscure. Referring once more to the bridled facial pattern: it has been met with in the Teal x Shoveler, Teal x Mallard, Shoveler x Wigeon, Pintail x Teal, Pintail x American Green-winged Teal and yet the character is lacking in this present cross, while as already stated, it can appear apparently in the absence of hybridisation in the European Green-winged Teal.

Similarly the age of the individual is by no means always easy to determine. In the present specimen the wing-coverts are greyish and call to mind those of a first winter Wigeon. Had the bird been obtained in an adult phase (it is presumed that this bird is a first winter individual) with white shoulders, it would have presented a very anomalous appearance, and it would have been even more difficult to appraise the proportionate values as to parentage of (1) the characters of the head and neck which are predominantly Teal and (2) the wing characters which would, under those circumstances, have been predominantly Wigeon.

Clearly there is still very much to be learned from a close study of such cases and, in this connection birds of known age and parentage will obviously provide some of the answers.

Such cases in captivity will also provide other evidence in the characters of the courtship, feeding habits, voice, etc. Also of course, successive plumages of such hybrids, including the eclipse plumage, will also no doubt offer some clues as to the pattern such hybrid individuals will follow.

While these remarks concern the external morphology and merely touch on the possible behavioural modifications, there is still left the whole field of anatomical features such as the osteology and enterology, as well as the important characters presented by the structural changes of the syrinx. Communications have already appeared in the literature on these important aspects of hybrids which in the past have too often been regarded as of little value and, in fact, as specimens to be avoided at any cost.

ACKNOWLEDGEMENTS

My thanks are due to Mr. D. R. Pycroft for presenting this interesting specimen to me. To Mr. Peter Olney of The Wildfowl Trust, for his opinion as to its feeding habits, and to Dr. Jeffery Harrison for comments and suggestions.

References:

Harrison, James M., and Jeffery G., 1956. An unusual plumage variation on the Wigeon, *Anas penelope* Linnaeus. *Bull. B.O.C.* 76, 125, 126.

Harrison, James M., and Jeffery G., 1957. Further remarks on variant Wigeon. *Ibid.* 77; 130, 131.

Harrison, James M., 1953. On the Significance of Variations of Pattern in Birds. *Ibid.* 73; 37–40.

Harrison, James M., 1959. Comments on a Wigeon X Northern Shoveler Hybrid. *Ibid.* 79; 142–151.

The status of *Centropus toulou wahlbergi* C. Grant

by MICHAEL P. STUART IRWIN

Received 13th March, 1962

Centropus toulou wahlbergi C. Grant, *Bull. B.O.C.* 35, 1915, p. 99, with type locality Umslango, Port Natal = Umhlanga Rocks, Durban, is generally recognised as representing an endemic South African race of this widely distributed Indo-African and Malagasy coucal, and is so recognised by Peters (1940), (who provisionally referred Transvaal birds to this race), Roberts (1940), Vincent (1952), Clancey (1953), McLachlan and Liversidge (1957), Smithers *et al.* (1957) and Mackworth-Praed and Grant (1962).

In the course of a joint study undertaken with Mr. C. W. Benson and Mr. C. M. N. White into rifts and river valleys as zoogeographical barriers in South-Central and East Africa, (Benson, Irwin and White in press), the status of the populations of this highly localised species were investigated, as *C. t. wahlbergi* was more or less generally supposed to reach its distributional limit on the northern edge of the Mashonaland plateau.

Generally speaking this coucal is poorly represented in collections. However, it has been possible to assemble some 22 skins, consisting of all housed in the National Museum of Southern Rhodesia; the Transvaal Museum, Pretoria (kindly loaned through Mr. O. P. M. Prozesky) and in the Museu Dr. Alvaro de Castro, Lourenço Marques. I have also been able to examine material recently collected by Major Melvin Traylor for the Chicago Natural History Museum. Of the total number of specimens available, only those in adult breeding dress have been of use for taxonomic purposes. This series comprises a female in non-breeding dress and an immature male from Lake Rukwa, Tanganyika Territory; three breeding dress males and three similarly plumaged females from Northern Rhodesia, plus a male and female in non-breeding dress and one juvenile female from that Territory. From Southern Rhodesia there are two females in breeding dress from Mashonaland; from Nyasaland a male and two females in breeding dress; and from Ngamiland in the northern Bechuanaland Protectorate I have seen a recently collected pair in breeding dress. Unfortunately the only South African material available comprises an adult male in breeding dress from Roodeval in the Transvaal and a juvenile male from northern Zululand; in addition a single adult breeding plumaged female has been examined from extreme southern Portuguese East Africa. A female in breeding dress from Sokotu in Nigeria has also been available for comparison.

The original description of *C. t. wahlbergi* was based on an unsexed bird in breeding dress, stated to differ from *Centropus toulou grillii* Hartlaub, *J.f.O.* 9, 1861 : p. 13, Gabon, by having the entire head, except the ear-coverts, glossy blue-black, without the green sheen, but of not quite so deep a blue as is shown in the type of *Centropus toulou caeruleiceps* Neumann, *J.f.O.* 52, 1904; p. 380, Lake Abaya, Abyssinia, but with the blue of the head sharply defined, not merging gradually into the colour of the back. The mantle is also stated to be chestnut, rather darker than the wing-coverts and altogether lacking the dark colour of a bird from Nyasaland.

Though only two breeding dress specimens have been available from South Africa, south of the Limpopo River drainage, they in no way differ from the more extensive material from further north in the Rhodesias, Nyasaland and the Bechuanaland Protectorate. All have the same blue-black sheen on the head, sides of face, nape and chest, and are not oily green as is generally stated. However, an adult from the Mzimba District and another from Dedza in Nyasaland, do have an oily green gloss, less obviously bluish, but the differences are not great and can only be seen in certain lights. Again in respect of the mantle colour, no appreciable differences are apparent, either between Nyasaland birds as claimed in the original description, and those of South Africa proper, or of the populations of the Rhodesias and Bechuanaland. All have the mantle below the iridescent nape an umber brown, but there is a considerable amount of individual variation depending on the amount of wear and the precise state of moult. In all, the iridescent region of the nape is generally well defined from the back, and though reasonably well demarcated, cannot generally be said to merge with the brown colour of the rest of the mantle. Such slight variation as occurs seems to be individual and without racial significance. The single Nigerian specimen examined, too, cannot be separated from any of the general series from Central Africa or from the two South African birds. Birds in non-breeding dress do not appear to differ in any way either, nor is there any demonstrable size difference between any of the populations examined.

Unfortunately I have not personally been able to examine the type of *C. t. wahlbergi* housed in the British Museum (Natural History), but Mrs. B. P. Hall has kindly examined it on my behalf. It was originally collected by Wahlberg in 1840 and though now over 120 years old, is stated to be in an excellent state of preservation and still retains the original collector's label. Further, it appears to have been prepared by Wahlberg himself, as it is skinned from under the wing, the technique he used. On the basis of colour Mrs. Hall states that the original description by Grant fits perfectly and this is also true of the rather more detailed diagnosis given by Sharpe (1875–84) based on the same specimen, but this author does not mention the shade of gloss. The fact, however, that the populations under discussion do prove to have the head blue-black rather than an oily green, fits far more closely the facts and the only discrepancy remaining lies in the mantle colour and to whether or not the nape is strongly demarcated or not from the rest of the back, and as already shown there is considerable individual variation in this respect. Mrs. Hall states further that the type in regard to the head, matches in the glossy sheen, specimens of *C. t. caeruleiceps* from the Sudan, and this fact was stressed by Grant (1915). It has not been possible to examine any specimens from East Africa, north of Lake Rukwa, but it would seem probable, that on the examination of longer series, that *C. t. caeruleiceps* may prove also to be a synonym of *C. t. grillii*. However, Neumann, in the original description of *C. t. caeruleiceps* stated that the lesser under wing-coverts in this form were black, but Grant (*op. cit.*) noted that one specimen from Nyasaland showed this character, but that others from the same Territory were normal. Of the series available in this study, all have the under wing-coverts rufous.

Despite the fact that the species is rare or local over much of its continental range, and at the present day divisible into a number of apparently discontinuously distributed populations, geographical variation is not very apparent, if indeed it really exists at all. Lack of adequate series prevents any final conclusions being reached at this stage.

J. G. Williams (*in litt.*) mentions that he has never collected it personally in East Africa. At the present day it is unknown from anywhere near the type locality and is unrepresented in the collection of the Durban Museum (Clancey *in litt.*), and has been visually recorded no nearer than ninety to a hundred miles north of the type locality (Lawson, personal communication). Recent developments and ecological changes associated with replacement of the natural habitat by sugar cane, may have caused a local retraction of the specific range, as the type locality appears to be at the extreme southern limit of the species distribution. The supposed record by Levaillant from near the Zwart River in the Eastern Cape Province is founded on a bird from the Far East and represents another species (Neumann, 1902).

On the evidence assembled above, it becomes clear that it will be henceforth necessary to place *C. t. wahlbergi* C. Grant in the synonymy of *C. t. grillii* Hartlaub, so that all the birds south of the Zambesi River must in future be known by the older name, leaving the only other continental African race, *C. t. caeruleiceps*, whose status too, as a satisfactorily recognisable form must remain in considerable doubt, and seemingly restricted to the highlands of Kenya Colony northward to Abyssinia and westward to the Sudan and Uganda.

References:

Benson, C. W., Irwin, M. P. S., and White, C. M. N. (in press). The Significance of valleys as Avian zoogeographical barriers, *Proc. First Symp. Zool. Soc. S. Afr.*

Clancey, P. A. (1953). *A preliminary list of the Birds of Natal and Zululand.* 1–55, Durban Museum, South Africa.

Grant, C. H. B. (1915). On a collection of Birds from British East Africa and Uganda, Pt. 1, *Ibis*, 400–473.

Layard, E. L. (1875–84). *The Birds of South Africa*, 1–890, New Edition Revised by R. B. Sharpe, London.

Mackworth-Praed, C. W., and Grant, C. H. B. (1962). *Birds of the Southern Third of Africa*, Ser. 2, Vol. 1, 1–688.

McLachlan, G. R., and Liversidge, R. (1957). Roberts' *Birds of South Africa*, 1–504, Cape Town.

Neumann, O. (1902). On *Centropus nigrorufus*, *Bull. B.O.C.*, 12, 75.

Peters, J. L. (1940). *Check List of the Birds of the World*, Vol. 4, 1–291, Harvard University Press.

Roberts, A. (1940). *The Birds of South Africa*, 1–463, Central News Agency.

Smithers, R. H. N., Irwin, M. P. S., and Paterson, M. L. (1957). *A Check List of the Birds of Southern Rhodesia*, 1–163, Cambridge University Press.

Vincent, J. (1952). *A Check List of the Birds of South Africa*, 1–122.

The relative priority of the generic names *Uraeginthus* and *Granatina*

by C. J. O. Harrison

Received 24th February, 1962

In his revision of the Estrildidae, Wolters (1957) combined the two genera *Uraeginthus* and *Granatina* to form a single genus under the latter name, an arrangement subsequently used by others. *Uraeginthus* was described by Cabanis in 1851. For *Granatina* Delacour (1943), Wolters (1957) and Steiner (1960) all cite "Bonaparte, *Conspectus Generum*

Avium, vol. 1, p.458, 1850.''; but Sharpe (1890) pointed out that Bonaparte never used this name for a genus, and that although it was subsequently treated as a generic name by other authors it had never been described. Bonaparte only used the term ''Granatinae'' for a species group within his genus *Estrelda*. Sharpe (1890) gives a diagnostic description of the genus in his key to the genera (*loc. cit.* p. 203) and the correct citation would appear to be: *Granatina*, Sharpe, *Cat. B. M.* xiii, p. 403, 1890, type by tautonomy *Granatina granatina*.

In these circumstances *Uraeginthus*, Cabanis, 1851, has priority, and if the two genera are to be combined this is the correct generic name.

References:
Delacour, J. 1943. A revision of the subfamily Estrildinae of the family Ploceidae. *Zoologica*, 28: 69–86.
Sharpe, R. B. 1890. *Catalogue of the birds in the British Museum.* vol. xiii. London.
Steiner, H. 1960. Klassifikation der Prachtfinken, Spermestidae, auf Grund der Rachenzeichnungun ihrer Nestlinge. *Journ. f. Ornith.* 101: 92–112.
Wolters, H. E. 1957. Die klassifikation der Webefinken (Estrildidae). *Bonn. Zool. Beitr.* 8: 90–129.

An addition to our knowledge of *Euplectes diademata*

by JOHN G. WILLIAMS

Received 6th March, 1962

The Fire-fronted Bishop, *Euplectes diademata* Fischer & Reichenow, is an uncommon local species with a restricted distribution in the eastern districts of southern Somalia and Kenya, and in north-eastern Tanganyika. During seventeen years ornithological work in East Africa I have encountered the species only twice, near Kilifi on the Kenya coast and near Isiolo, Northern Frontier Province, Kenya.

Following the exceptionally heavy rains in Kenya during late 1961 numerous Fire-fronted Bishops appeared in the Tsavo Royal National Park (East). The species was previously unknown in the Park. The habitat selected was areas of lush grass with scattered small bushes and herbage. Nesting colonies of eight and twelve nests were discovered on the 18th and 25th January, 1962 by Mr. David Sheldrick, Warden of the Tsavo Royal National Park and his assistant Mr. Charles Moore. One colony was at mile 8 on the Voi-Lugard's Falls road and the other at the base of Irima Hill. Some nests contained young, others fresh or incubated eggs, and some nests were recently constructed and were without eggs. Specimens of the birds, nests and eggs were collected.

Weights of specimens. Five adult males weighed 14, 13.5, 15, 13.5 and 15 grammes: one adult female 13.5 grammes: one juvenile male 14 grammes and one juvenile female 14 grammes.

Food. The stomach contents of all specimens examined consisted entirely of grass seeds—probably *Sporobolus* sp. (det. Miss D. Napper).

Breeding habits. Nests were built between 18 and 30 inches above the ground, attached to grass stems or to twigs of small shrubs growing in clumps of grass. All nests examined, over twenty, had the entrance holes facing due north. Nests were usually very frail structures, oval in shape with a large top side entrance. Only one nest examined was more solidly constructed, being thickly lined with fine grass. The typical nest was woven of grass blades and grass stems with a little softer grass as lining: it measured 4½ x 3½ inches with a broad top-side entrance 2 x 1½ inches.

Some nests were so loosely woven that the eggs could be seen through the side of the nest. Full clutches of eggs varied from two to four. The eggs were rounded ovals with some gloss: pale bluish-green (*pale sulphate green*, Ridgway) more or less heavily speckled and spotted with mauve, dark olive green and black. Measurements of ten eggs: 16—17.9 x 12.2—13.4 mm.

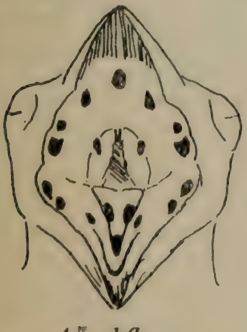
Acknowledgements. I am grateful to Colonel M. Cowie, Director of the Royal National Parks of Kenya, for his most helpful co-operation in all matters relating to the avifauna of Kenya's National Parks, and to Wardens David Sheldrick and Charles Moore for collecting specimens and data.

The mouth-markings of the nestlings of *Amandava subflava* (Vieill.)

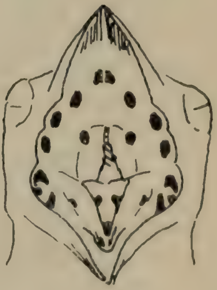
by C. J. O. Harrison

Received 3rd July, 1962

The nestlings of the Estrildidae possess distinctive patterns of black spots or lines on the inside of the mouth, which vary from one species to another. These patterns have been used as taxonomic characters by Delacour (1943), and to a greater extent by Steiner (1960) who published diagrams of the markings of thirty species. These markings would appear to be highly variable and probably only of taxonomic value as additional characters in certain species. I was recently able, through the kindness of A. Hayes, able to examine the mouth-markings of a brood of young of *Amandava subflava* which had died in the nest at 7–8 day old. Delacour states that the markings of this species have been recorded, but he does not comment on them when discussing taxonomic relationships. Steiner describes the markings of his tribe Amandavae but his description appears to be based only on *A. amandava*.



A. subflava



A. amandava

In the accompanying sketches I have compared the mouth-pattern of *A. subflava* with that of *A. amandava* as shown by Steiner. The two drawings are not of course to scale. The resemblance between the two patterns is very close indeed and, in view of the variation of such markings from one species to another, could be considered to indicate a close relationship. They differ in that the uppermost spot of *A. subflava* is single and not double, and there are only two markings on the lower edge of the gape. I find that there is also a small black mark in the middle of the underside of the tongue.

References:

Delacour, J. 1943. A revision of the subfamily Estrildinae of the Ploceidae. *Zoologica, N.Y.* 28: 69–81.

Steiner, H. 1960. Klassifikation der Prachtfinken, Spermestidae, auf Grund der Rachenzeichnungen ihrer Nestlinge. *J. Orn.* 101: 92–112.

10 DEC 196

Bradypterus barratti major (Roberts) 1922 pre-occupied by *Bradypterus major* (Brooks) 1872

by P. A. CLANCEY AND H. E. WOLTERS

Received 4th September, 1962

In the *Annals of the Transvaal Museum*, vol. viii, 4, 1922, p. 234, Austin Roberts proposed a new race of Scrub Warbler *Bradypterus barratti* (Sharpe) under the name *Caffrillas barratti major*, the *Type* from Wakkerstroom, on the Transvaal/Natal border. This taxon has generally been admitted as valid by systematic workers, and is listed in Vincent, *Check List of the Birds of South Africa*, 1952, p. 78; Clancey, *Bull. B.O.C.*, vol. 75, 4, 1955, pp. 38–44; and McLachlan and Liversidge, *Roberts' Birds of South Africa*, 1957, p. 323, in the combination *Bradypterus barratti major* (Roberts), 1922.

The name *major* cannot, however, be used for a South African *Bradypterus*, as it is pre-occupied by *Bradypterus major* (Brooks), 1872; Kashmir (*Dumeticola major* Brooks, *Journ. Asiatic Soc. Bengal*, vol. xli, p. 77) a form occasionally placed in *Tribura* Hodgson, a genus now admitted by workers as being synonymous with *Bradypterus* Swainson, 1837. Incidentally, Vaurie, *Birds of the Palearctic Faune*, vol. i, 1959, p. 299, lists *Tribura* as a subgenus, but treats *Dumeticola major* as *Bradypterus major*.

Arising from the above finding, another name will be required for *B. b. major* (Roberts). Two names have been given to Natal populations of this warbler, namely, *Bradypterus* (*Caffrillas*) *barratti wilsoni* Roberts, 1933: Kloof, Natal, and *Bradypterus barratti cathkinensis* Vincent, 1948: near Cathkin Peak and the Mahlabachaneng Pass, Giants' Castle Game Reserve, Natal. In the review of the races of *B. barratti* by one of us (P. A. C. [*loc. cit.*]), both *B. b. wilsoni* and *B. b. cathkinensis* were placed as synonyms of *B. b. godfreyi* (Roberts), 1922: Pirie, eastern Cape Province. A re-examination of material of the Natal populations confirms that *B. b. wilsoni* is indistinguishable from *B. b. godfreyi*, but that *B. b. cathkinensis* is applicable to populations which are colder and greyer brown on the upper parts and clearer grey, less olive tinged, over the breast and lateral body surfaces. On the basis of fresh material, it now seems that there is no valid racial difference between the populations of this warbler occurring in the high parts of Griqualand East, the western escarpment and upper districts of Natal, and those found in the Wakkerstroom district, of the south-eastern Transvaal, which results in Vincent's *B. b. cathkinensis* (*vide Bull. B.O.C.*, vol. lxix, 2, 1948, p. 18) becoming available as the correct name for *B. b. major* (Roberts), pre-occupied.*

The range of *B. b. godfreyi* has now been determined as from the eastern Cape Province, through Pondoland and coastal and midland Natal to Zululand, north as far as the Lebombo Range.

---

* In the light of these findings the recently proposed name *Bradypterus barratti lysis* Parker, Bull. B.O.C., 82, p. 122 (1962), becomes a synonym of *Bradypterus barratti cathkinensis* Vincent.

COMMITTEE 1962

Major-General C. B. Wainwright, *Chairman* (elected 1962)
Mr. R. S. R. Fitter, *Vice-Chairman* (elected 1962)
Mr. J. J. Yealland, *Editor* (elected 1962)
Dr. J. G. Harrison, *Secretary* (elected 1962)
Mr. P. Tate, *Hon. Treasurer* (elected 1962)
Mr. P. A. D. Hollom (elected 1959)
Mrs. P. V. Upton (elected 1960)
Mrs. B. P. Hall (elected 1962)
Mr. P. Hogg (elected 1962)

OFFICERS OF THE BRITISH ORNITHOLOGISTS' CLUB PAST AND PRESENT

Chairmen

P. L. Sclater	1892–1913
Lord Rothschild	1913–1918
W. L. Sclater	1918–1924
H. F. Witherby	1924–1927
Dr. P. R. Lowe	1927–1930
Major S. S. Flower	1930–1932
D. A. Bannerman	1932–1935
G. M. Mathews	1935–1938
Dr. A. Landsborough Thomson	1938–1943
D. Seth-Smith	1943–1946
Dr. J. M. Harrison	1946–1949
Sir Philip Manson-Bahr	1949–1953
Colonel R. Meinertzhagen	1953–1956
C. W. Mackworth-Praed	1956–1959
Captain C. R. S. Pitman	1959–1962
Maj.-Gen. C. B. Wainwright	1962–

Vice-Chairmen

Lord Rothschild	1930–1931
W. L. Sclater	1931–1932
H. F. Witherby	1932–1933
G. M. Mathews	1933–1934
N. B. Kinnear	1934–1935

Vice-Chairmen—*cont.*

H. Whistler	1935–1936
D. Seth-Smith	1936–1937
Colonel R. Sparrow	1937–1938
Dr. G. Carmichael Low	1938–1939
Hon. Guy Charteris	1938–1939
W. L. Sclater	1939–1940
Dr. D. A. Bannerman	1939–1940
Capt. C. H. B. Grant	1940–1943
B. W. Tucker	1940–1943
F. J. F. Barrington	1943–1945
Dr. E. Hopkinson	1943–1945
C. W. Mackworth-Praed	1945–1946
Dr. J. M. Harrison	1945–1946
Sir Philip Manson-Bahr	1946–1947
B. G. Harrison	1946–1947
Lt.-Colonel W. P. C. Tenison	1947–1948
Miss E. M. Godman	1947–1948
Colonel R. Meinertzhagen	1948–1949
Major A. G. L. Sladen	1948–1949
Colonel R. Meinertzhagen	1949–1953
E. M. Nicholson	1953–1956
Captain C. R. S. Pitman	1956–1959
Mrs. B. P. Hall	1959–1962
R. S. R. Fitter	1962–

Editors

R. Bowdler Sharpe	1892–1904
W. R. Ogilvie-Grant	1904–1914
D. A. Bannerman	1914–1915
D. Seth-Smith	1915–1920
Dr. P. R. Lowe	1920–1925
N. B. Kinnear	1925–1930
Dr. G. Carmichael Low	1930–1935
Captain C. H. B. Grant	1935–1940
Dr. G. Carmichael Low	1940–1945
Lt.-Colonel W. P. C. Tenison	1945–1947
Captain C. H. B. Grant	1947–1952
Dr. J. G. Harrison	1952–1961
J. J. Yealland	1962–

Honorary Secretaries and Treasurers

HOWARD SAUNDERS	1892–1899
W. E. DE WINTON	1899–1904
H. F. WITHERBY	1904–1914
Dr. P. R. LOWE	1914–1915
C. G. TALBOT-PONSONBY	1915–1918
D. A. BANNERMAN	1918–1919
Dr. PHILIP GOSSE	1919–1920
J. L. BONHOTE	1920–1922
C. W. MACKWORTH-PRAED	1922–1923
Dr. G. CARMICHAEL LOW	1923–1929
C. W. MACKWORTH-PRAED	1929–1935

Honorary Secretaries

Dr. A. LANDSBOROUGH THOMSON	1935–1938
C. R. STONOR	1938–1940
N. B. KINNEAR	1940–1943
Dr. G. CARMICHAEL LOW	1943–1945
Lt.-Colonel W. P. C. TENISON	1945–1947
Captain C. H. B. GRANT	1947
W. E. GLEGG	1947–1949
Miss G. M. RHODES	1949–1950
N. J. P. WADLEY	1950–1960
Miss E. FORSTER	1960–1962
Dr. J. G. HARRISON	1962–

Honorary Treasurers

C. W. MACKWORTH-PRAED	1935–1936
Major A. G. L. SLADEN	1936–1942
Miss E. P. LEACH	1942–1949
C. N. WALTER	1950–1962
P. TATE	1962–

LIST OF MEMBERS AS AT 31st OCTOBER 1962

Amended as follows:—

New Members

Arkell, J., 5 Cornwall Gardens, S.W.7.
Bailey, Lt. N., R.N., The Green, Ravensthorpe, Northampton. Resigned Dec. 1962.
Beck, J. R., Dept. of Zoology, Royal Holloway College, Engelfield Green, Surrey.
Gillham, E. H., 1a Lancing Road, Orpington, Kent.
Lawson, T. R., 203 Winchmore Hill Road, Winchmore Hill, London, N.21.
Patrick, G. L. A., 11 Knollpark Drive, Clarkston, Glasgow.
Romer, M. L. R., The Old Vicarage, Braughing, Ware, Herts.
Seton-Watson, G. H. N., 8 Burghley Road, Wimbledon, S.W.19.
Palle Johnsen, Zoological Institute, Aarhue University, Denmark.
Tongue, P., P.O. Box 4224, Cape Town, South Africa.
Tompa, F. S., Dept. of Zoology, University of British Colombia, Vancouver 8.B.C. Canada.

Resigned

Feeny, P. P.
Harrison, Sir Bernard G.
McGeoch, J. A.
Osborne Mitchell, Mrs.
Smith, K. D.
Sherriff, A.
Spedan-Lewis, J.
Van Someren, Dr. V. G. L.

Died

Lowe, Mrs. H. D., 2 Hugo House, 178 Sloane Street, S.W.1.
Richards, Dr. W. A., 40 Swakeleys Road, Ickenham, Uxbridge, Middx.

LIST OF AUTHORS, ETC.

Page

Accounts, Financial 78–80

Annual General Meeting 81–82

Benson, C. W.
Jacana and other birds perching on Hippo 21–22

Benson, C. W. and Pitman, Charles R. S.
Some breeding and other records from Madagascar 30–33

Benson, C. W. and White, C. M. N.
Erythropygia quadrivirgata and allied species 72–75

Boswall, Jeffery
Some recordings of bird voice 21

Clancey, P. A.
The validity of *Pytilia melba damarensis* Neunzig, 1928 3–5
On the geographical variation of the Yellow-throated Longclaw *Macronyx croceus* (Vieillot) 5–9
An additional race of *Buphagus erythrorhynchus* (Stanley) from the Somali Arid Desert 19–20
Comments on the typical race of *Eremomela icteropygialis* (Lafresnaye) 44–45
A new race of *Myioparus plumbeus* (Hartlaub) 61–63

Page

Clancey, P. A. and Wolters, H. E.
  Bradypterus barratti major (Roberts) 1922 pre-occupied by *Bradypterus major* (Brooks) 1872 174

Cunningham-van Someren G. R. and Robinson, C.
  Notes on the African Lily-trotter *Actophilornis africanus* (Gmelin) 67–72

Filming Wild Nature—Fair Means or Foul 82–83

Harrison, C. J. O.
  The size of the sexes in the African Lily-trotter *Actophilornis africanus* (Gmelin) 83
  Notes on the distribution and eggs of some waterfowl 90–91
  The affinities of the Red Avadavat, *Amandava amandava* (Linn.) 126–132
  The relative priority of the generic names *Uraeginthus* and *Granatina* 171–172
  The mouth-markings of the nestlings of *Amandava subflava* (Vieill.) 173–174

Harrison, David L.
  See Harrison, James M.

Harrison, James M.
  A record of Dunn's Lark in the Lebanon 75
  A wild-shot Wigeon X European Green-winged Teal 165–169

Harrison, James M. and Harrison, Jeffery G.
  Variant winter plumage in the Scaup 43
  A European Green-winged Teal with a white neck-ring 88–90
  Albinism and melanism in birds (as illustrated by the Mallard) and their possible significance 101–109

Harrison, James M., Hovel, Haim, and Harrison, David L.
  A mass migration of Pelicans in Israel 76

Harrison, James M. and Hovel, Haim
  A benign tumour of the foot of a Crested Lark 87–88

Harrison, Jeffery G.
  See Harrison, James M.

Hoogerwerf, A.
  On *Aegithina tiphia* (Linn.), the Common Iora, from Udjung Kulon, Western Java 160–165
  Ornithological notes on the Sunda Strait area and the Karimundjawa, Bawean and Kangean Islands 142–147
  Further notes on the Ashy Tailor Bird, formerly known as *Orthotomus ruficeps* (Lesson) and *Orthotomus cineraceus* Blyth 147–154

Hovel, Haim
  See Harrison, James M.

Irwin, Michael P. Stuart
  The status of *Centropus toulou wahlbergi* C. Grant 169–171

Keith, G. Stuart
  See Williams, J. G.

Lawson, Walter J.
  On the distribution of the races of the Paradise Flycatcher *Terpsiphone viridis* (Müller) in Southern Africa 26–30
  A new race of Warbler *Apalis flavida* (Strickland) from Central Africa 133–134
  Geographical variation in the Fiscal Flycatcher *Melaenornis silens* (Shaw) of South Africa 135–137

Page

Marchant, S.
Watering of the young in *Pterocles alchata* 123–124

Moore, Norman
Toxic chemicals and conservation 155

Parker, S. A.
A new name for *Bradypterus barratti major* (Roberts) 122
Notes on some undescribed eggs from New Guinea 132–133

Phillips, A. R.
Further reflections on the British List 97–100

Pitman, Charles R. S.
More snake and lizard predators of birds 33–40, 45–55
Waterfowl predation in Canada by the Northern Pike (or Jackfish) *Esox lucius L.* 64–67
Bird predation by the North American Snapping Turtle *Chelydra serpentina* L. 95–96
Further notes on some bird/other animal associations in Africa .. 100–101
Notes on the African Finfoot, *Podica senegalensis* (Vieillot) with particular reference to Uganda 156–160
See also Benson C. W.

Richdale, L. E.
Site tenacity in the Sooty Shearwater 41–42

Ripley, S. Dillon
Further comments on an Angolan Sunbird 42

Robinson, C.
See Cunningham-van Someren, G. R.

Rollins, N.
Abnormal white, yellow, and fawn plumages 83–86

Sage, Bryan L.
Notes on some Ferruginous White-eye X Tufted Duck hybrids .. 55–60
A hybrid Red-crested Pochard X Ferruginous White-eye 138–140

Salomonsen, Finn
Notes on the Paradise Flycatcher *Terpsiphone viridis* (Müller) in Southern Africa 96

Serle, W.
Remarks on the taxonomy of *Turdus nigrilorum* Reichenow and *Turdus saturatus* (Cabanis) in Southern British Cameroons 124–126

Serventy, Vincent
Australian land and sea birds 117–118

Simmons, K. E. L.
A new race of the grebe *Podiceps chilensis* from Lake Junin, Peru .. 92–94
Some recommendations for a revised check-list of the genera and species of grebes (Podicipitidae) 109–116

Traylor, Melvin A.
A new name for *Estrilda astrild angolensis* Reichenow 22
A new pipit from Angola 76–77
An aberrant specimen of *Lybius undatus leucogenys* Blundell and Lovat 86–87

Van Someren, G. R. Cunningham-
See Cunningham-van Someren, G. R.

Page

Watson, George E.
  A revision of Balkan, Aegean and Anatolian Crested Larks 9–18

White, C. M. N.
  Notes on the taxonomy of the Indigo Birds 22–26
  See also Benson, C. W.

Williams, J. G.
  A new Cossypha from Kenya 137–138
  An addition to our knowledge of *Euplectes diademata* 172–173

Williams, J. G. and Keith, G. Stuart
  A contribution to our knowledge of the Parasitic Weaver, *Anomalospiza imberbis* 141–142

Winterbottom, J. M.
  Albinism in Northern Rhodesian birds 92
  The south-western races of *Eremomela icteropygialis* (Lafresnaye) .. 118–122

Wolters, H. E.
  On the races of *Estrilda nonnula* (Hartlaub) 91–92
  See also Clancey, P. A.

INDEX OF SCIENTIFIC NAMES

All generic and specific names are indexed. Only new subspecific names are included. These are indexed under the generic name in heavy type, and also under the subspecific name.

aalge, Uria 104
Actophilornis africanus 67–72, 83, 97, 101
acuta, Anas 66
Aechmophorus major 110
  — occidentalis 110, 116
Aegintha temporalis 127
Aegithina tiphia 160–165
Aegithina tiphia djungkulanensis *subsp. nov.* 162–165
aegyptiacus, Alopochen 46
affinis, Apus 35
affinis, Aythya 66, 168
africanus, Actophilornis 67–72, 83, 97, 101
africanus, Buphagus 101
Agelaius phoeniceus 104
aguimp, Motacilla 51
Aix galericulata 102, 105
  — sponsa 66, 95
alba, Gygis 52
albeola, Bucephala 66
albifrons, Anser 90
albospecularis, Copsychus 33
alchata, Pterocles 123–124
Alopochen aegyptiacus 46
Amandava amandava 126–132, 173
  — formosa 127, 131–132
  — subflava 127, 131–132, 173–174
  see also Estrilda
amauropteryx, Vidua 23–26
americana, Aythya 66
americana, Fulica 67
Ammomanes dunni 75
anaetheta, Sterna 38
Anas acuta 66
  — clypeata 43, 66, 97, 105
  — crecca 43, 66, 88, 165–168
  — discors 66, 95
  — flavirostris 88
  — formosa 43, 60
  — penelope 43, 165–168
  — penelope X Anas crecca 165–168
  — platalea 97
  — platyrhynchos 43, 66, 88, 95, 105–107
  — rubripes 66, 95
  — sparsa 106
  — strepera 60
  — waigiuensis 102
andinus, Podiceps 110, 113–114, 116
Andropadus importunus 35
angolensis, Uraeginthus 33
anguitimens, Eurocephalus 51, 54
Anomalospiza imberbis 141–142
Anous stolidus 52
Anser albifrons 90
Anser anser 102
  — coerulescens 90, 101
  — cygnoides 90
Anthus pratensis 47
  — richardi 77
  — similis 76–77

Anthus (similis) moco *subsp. nov.* 77
— spinoletta 85
Apalis flavida 133–134
Apalis flavida canora *subsp. nov.* 134
apiaster, Merops 51
Apus affinis 35
Ardea goliath 101
Ardeola idae 31
— ralloides 31, 68
ardesiaca, Egretta 31
atriceps, Brachypodius 143
atriceps, Pycnonotus 144
auritus, Colymbus 67
auritus, Podiceps 109–110, 113, 115
Aythya affinis 66, 168
— americana 66
— baeri 57–59
— collaris 58, 95
— ferina X Aythya fuligula 168
— fuligula 43, 55–60, 168
— marila 58–59, 104
— novaeseelandiae 104
— nyroca 43, 55–60, 139–140
— valisineria 66

baeri, Aythya 57–59
bannermani, Nectarinia 42
barbata, Erythropygia 73–74
baroli, Puffinus 52
barratti, Bradypterus 122, 174
bitorquata, Streptopelia 143
borealis, Orthotomus 143
Brachypodius atriceps 143
Bradypterus barratti 122, 174
Bradypterus barratti lysis *nom. nov.* 122, 174
— major 122, 174
Branta canadensis 90
brunneicauda, Newtonia 33
Bubulcus ibis 101
Bucephala 57
Bucephala albeola 66
— clangula 66, 95
bullockoides, Melittophagus 33
Buphagus africanus 101
— erythrorhynchus 19–20
Buphagus erythrorhynchus invictus *subsp. nov.* 19
Burhinus capensis 37
Butastur indicus 143, 144

caerulescens, Eupodotus 37
caeruleus, Parus 83–84
Cairina moschata 103, 105
Calicalicus madagascariensis 33
Calidris minuta 50
cambayensis, Thamnobia 50
canadensis, Branta 90
canarius, Serinus 84
canicollis, Serinus 34
canora, Apalis flavida 134
capensis, Burhinus 37
capicola, Streptopelia 46
Caprimulgus enarratus 32
— madagascariensis 32
caspicus, Colymbus 110
castanotis, Taeniopygia 85
Centropus senegalensis 32
— superciliosus 32
— toulou 31, 169–171
Cepphus grylle 104
Centropelma micropterum 110, 111
Ceryle rudis 22
chabert, Leptopterus 33
chalybeata, Vidua 25–26
cherina, Cisticola 32
chilensis, Podiceps 92–94, 109–111, 113–115
chinensis, Streptopelia 143, 144
chirurgus, Hydrophasianus 83
Chlidonias hybrida 31
Chloris chloris 84
Chloromunia 127
chloropus, Gallinula 68, 106
Circaëtus 51
Circus pygargus 101
Cisticola cherina 32
— galactotes 142
clangula, Bucephala 66, 95
clappertoni, Francolinus 50
clypeata, Anas 43, 66, 97, 105
coerulescens, Anser 90, 101
colchicus, Phasianus 101, 105
Colius indicus 34
collaris, Aythya 58, 95
Collocalia 48, 54
— lowei 21
Columba livia 85
Colymbus 109–116 *see also* Podiceps
— auritus 67
— griseigena 67
Copsychus albospecularis 33
coqui, Francolinus 36
corax, Corvus 103
corone, Corvus 102
Corvus corax 103
— corone 102
— monedula 102
Coscoroba coscoroba 90
Cossypha natalensis tennenti *subsp. nov.* 137–138
Coturnix coturnix 103
crecca, Anas 43, 66, 88, 165–168
cristata, Fulica 31, 68
cristata, Galerida 9–18, 87–88
cristatus, Podiceps 109–110, 112, 115, 116
croceus, Macronyx 5–9
cucullatus, Spinus 84
curvirostris, Treron 143
cyanomelas, Rhinopomastus 34
cygnoides, Anser 90

delalandii, Treron 35
diademata, Euplectes 172–173
dichrous, Pitohui 132–133
Dicrurus hottentottus 144
discors, Anas 66, 95
Dissemurus paradiseus 143, 144
djungkulanensis, Aegithina tiphia 162–165
dominicus, Podiceps 110, 112, 115
dominicus, Poliocephalus 109
Dumeticola major 122
dunni, Ammomanes 75
Dytes 113

Egretta ardesiaca 31
— garzetta 101
— schistacea 101
elizae, Estrilda 91
ennaratus, Caprimulgus 32
eremodites, Pyrrhulauda 75
Eremomela icteropygialis 44, 118–122
Erismatura jamaicensis 66
erythrophthalma, Netta 58–60
Erythropygia barbata 73–74
— quadrivirgata 72–75
— signata 72–75
erythrorhynchus, Buphagus 19–20
Erythrura 127
Estrilda 127–129
— elizae 91
— nonnula 91–92
— subflava 35
Eudyptula minor 38, 54
Euodice malabarica 130–131
Euplectes diademata 172–173
— hordeacea 92
Eupodotis caerulescens 37
Eurocephalus anguitimens 51, 54
Eurystomus glaucurus 32

ferina, Aythya 168
flava, Motacilla 85
flavida, Apalis 133–134
flavirostris, Anas 88
flavirostris, Limnocorax 68
flaviventris, Motacilla 32
formosa, Amandava 127, 131–132
formosa, Anas 43, 60
Francolinus clappertoni 50
— coqui 36
Fulica americana 67
— cristata 31, 68
fulicata, Thamnobia 49
fuliginosus, Haematopus 105
fuligula, Aythya 42, 55–60, 168
funerea, Vidua 23–26
fusca, Melanitta 66
fuscata, Sterna 52

galactotes, Cisticola 142
galericulata, Aix 102, 105

Galerida cristata 9–18, 87–88
Gallinula chloropus 68, 106
Garrulus glandarius 106
garzetta, Egretta 101
Gennaeus lineata 46
gigas, Podilymbus 110, 113, 114, 115
glandarius, Garrulus 106
glaucurus, Eurystomus 32
goliath, Ardea 101
Gracula religiosa 21
gramineus, Pooecetes 48
Granatina 129, 171–172
Granatina granatina 172
griseigena, Colymbus 67
griseigena, Podiceps 109, 112, 114, 115
griseus, Passer 34
griseus, Puffinus 41–42
grylle, Cepphus 104
Gygis alba 52

Haematopus fuliginosus 105
— ostralegus 105
Haliaëtus leucogaster 143, 144
Himantopus himantopus 46
Histrionicus histrionicus 67
hordeacea, Euplectes 92
hottentottus, Dicrurus 144
hybrida, Chlidonias 31
Hydrophasianus chirurgus 83
Hypochera 22

ibis, Bubulcus 101
icteropygialis, Eremomela 44, 118–122
idae, Ardeola 31
imberbis, Anomalospiza 141–142
importunus, Andropadus 35
Indicator indicator 21
indicus, Butastur 143, 144
indicus, Colius 34
intermedius, Ploceus 34
invictus, Buphagus erythrorhynchus 19
Ixocincla madagascariensis 33

Jacana spinosa 83
jamaicensis, Erismatura 66
jamaicensis, Oxyura 91

kelaarti, Lonchura 128

Lagonosticta 33, 129
— senegala 39, 53, 128
layardi, Parisoma 63
Leptopterus chabert 33
lepurana, Turnix 39
leucogaster, Haliaëtus 143, 144
leucogastra, Lonchura 128
leucomelas, Bradypterus 136
leucomelas, Melaenornis silens 137
leuconotus, Thalassornis 68
leucosticta, Lonchura 128–129
libonyanus, Turdus 124–126

Limnocorax flavirostris 68
lineata, Gennaeus 46
livia, Columba 85
Lonchura kelaarti 128
— leucogaster 128
— leucosticta 128–129
— punctulata 130, 131
— striata 130
— tristissima 128
lowei, Collocalia 21
Lybius undatus 86–87
lysis, Bradypterus barratti 122

Macronyx croceus 5–9
madagascariensis, Calicalicus 33
madagascariensis, Caprimulgus 32
madagascariensis, Ixocincla 33
maderaspatana, Zosterops 33
mahali, Plocepasser 92
major, Aechmophorus 110
major, Bradypterus 122, 174
major, Podiceps 111, 112, 114, 115
malabarica, Euodice 130, 131
marila, Aythya 58–59, 104
maxima, Megaceryle 36
Megaceryle maxima 36
Melaenornis silens 135–137
Melaenornis silens leucomelas *subsp. nov.* 137
Melanitta fusca 66
Melanocephalus ploceus 101
melba, Pytilia 3–5
meleagris, Numida 45–46
Melittophagus bullockoides 33
Melopsittacus undulatus 84
Mergus 67
Merops apiaster 51
merula, Turdus 85, 102
micropterum, Centropelma 110, 111
micropterus, Podiceps 94, 113, 115
minor, Eudyptula 38, 154
minuta, Calidris 50
monedula, Corvus 102
moco, Anthus (similis) 77
morrisoni, Podiceps chilensis 93
moschata, Cairina 103, 105
Motacilla aguimp 51
— flava 85
— flaviventris 32
mozambicus, Serinus 34
mutata, Tchitrea 33
Myioparus plumbeus 61–63

namaqua, Pterocles 37
nana, Spermestes 33
natalensis, Cossypha 137–138
Nectarinia bannermani 42
— sororia 42
— verticalis 42
nelicourvi, Ploceus 33
Neomixis striatigula 33
Netta erythrophthalma 58–60
— peposaca 58
— rufina 58, 139–140
Netta rufina X Aythya nyroca 138–140
Newtonia brunneicauda 33
nigerrima, Vidua 24–26
nigrescens, Pitohui 133
nigriceps, Terpsiphone 27
nigricollis, Podiceps 109, 110, 113, 114, 116
nigrilorum, Turdus 124–126
nonnula, Estrilda 91–92
novaehollandiae, Podiceps 113, 115
novaehollandiae, Poliocephalus 110
novaeseelandiae, Aythya 104
Numida meleagris 45–46
nyroca, Aythya 43, 55–60, 139–140

occidentalis, Aechmophorus 110, 116
occipitalis, Podiceps 113, 114, 116
olivaceus, Turdus 126
onocrotalus, Pelecanus 76
Orthotomus borealis 143
— cineraceus 147–154
— ruficeps 147–154
— sepium 143, 144–147, 148–154
Orthotomus sepium baweanus *subsp. nov.* 150–151
Orthotomus sepium sundaicus *subsp. nov.* 145–147
ostralegus, Haematopus 105
Oxyura jamaicensis 91
— vittata 91

paradiseus, Dissemurus 143, 144
parasiticus, Stercorarius 101
Parisoma layardi 63
— subcaeruleum 63
Parus caeruleus 83–84
Passer griseus 34
Pedetaithya 112
Pelecanus onocrotalus 76
pelzelnii, Podiceps 112–113, 115
pelzelnii, Poliocephalus 109
penelope, Anas 43, 165–168
peposaca, Netta 58
Perdix perdix 102
petrosus, Ptilopachus 45
Phasianus colchicus 101, 105
phoeniceus, Agelaius 104
Picus viridis 104
Pitangus sulphuratus 98
Pitohui dichrous 132–133
— nigrescens 133
platalea, Anas 97
platyrhynchos, Anas 43, 66, 88, 95, 105–107
Plocepasser mahali 92
— superciliosus 45
Ploceus 40
— intermedius 34

Ploceus melanocephalus 101
— nelicourvi 33
plumbea, Stenostira 63
plumbeiceps, Terpsiphone 27
plumbeus, Myioparus 61–63
Podica senegalensis 156–160
Podiceps andinus 110, 113–114, 116
— auritus 109–110, 113, 115
— chilensis 92–94, 109–111, 113–115
Podiceps chilensis morrisoni *subsp. nov.* 93
— cristatus 109–110, 112, 115–116
— dominicus 110, 112, 115
— griseigena 109, 112, 114–115
— major 111–112, 114–115
— micropterus 94, 111, 113, 115
— nigricollis 109–110, 113–114, 116
— novaehollandiae 113, 115
— occipitalis 113–114, 116
— pelzelnii 112, 113, 115
— poliocephalus 113–115
— rolland 94, 109–110, 113–115
— rufolavatus 110, 113, 115
— rufopectus 113, 116
— taczanowskii 93, 113–114, 116
podiceps, Podilymbus 67, 95, 110, 113–115
Podilymbus gigas 110, 113, 114, 115
— podiceps 67, 95, 110, 113–115
Poliocephalus dominicus 109
— novaehollandiae 110
— pelzelnii 109
— poliocephalus 110, 113
— ruficollis 109
— rufopectus 110
poliocephalus, Poliocephalus 110, 113
poliocephalus, Podiceps 113, 114, 115
Pooecetes gramineus 48
pratensis, Anthus 47
Proctopus 113
Pterocles namaqua 37
— senegallus 123, 124
Ptilopachus petrosus 45
Puffinus baroli 52
— griseus 41–42
punctulata, Lonchura 130, 131
Pycnonotus atriceps 144
— xanthopygos 33
pygargus, Circus 101
Pyrrhulauda eremodites 75
Pytilia melba 3–5

quadrivirgata, Erythropygia 72–75
Quelea quelea 102

ralloides, Ardeola 31, 68
religiosa, Gracula 21
Rhinopomastus cyanomelas 34
richardi, Anthus 77
rolland, Podiceps 94, 109–110, 113–115
rubripes, Anas 66, 95
rudis, Ceryle 22
ruficollis, Podiceps 112, 113, 115
ruficollis, Poliocephalus 109, 110, 112
rufina, Netta 58, 139–140
rufolavatus, Podiceps 110, 113, 115
rufopectus, Poliocephalus 110
rufopectus, Podiceps 113, 116

saturatus, Turdus 124–126
schistacea, Egretta 101
Scopus umbretta 22, 101
semitorquata, Streptopelia 96
senegala, Lagonosticta 34, 53, 128
senegalensis, Centropus 32
senegalensis, Podica 156–160
senegalensis, Streptopelia 92
senegallus, Pterocles 123, 134
sepium, Orthotomus 143, 144–147, 148, 149
Serinus canarius 84
— canicollis 34
— mozambicus 34
signata, Erythropygia 72–75
silens, Melaenornis 135–137
similis, Anthus 76–77
sororia, Nectarinia 42
sparsa, Anas 106
Spermestes 36
Spermestes nana 33
spinoletta, Anthus 85
Spinus cucullatus 84
spinosa, Jacana 83
sponsa, Aix 66, 95
Stenostira plumbea 63
Stercorarius parasiticus 101
Sterna anaetheta 38
— fuscata 52
— sumatrana 38
stictigula, Neomixis 33
stolidus, Anous 52
strepera, Anas 60
Streptopelia 35, 36
— bitorquata 143
— capicola 46
— chinensis 143, 144
— semitorquata 46
— senegalensis 92
striata, Lonchura 130
Sturnus vulgaris 85
suahelica, Terpsiphone 27
subcaeruleum, Parisoma 63
subflava, Amandava 127, 131–132, 173–174
subflava, Estrilda 35 *see also* Amandava
sulphuratus, Pitangus 98
sumatrana, Sterna 38
sundaicus, Orthotomus sepium 145–147
superciliosus, Centropus 32
superciliosus, Plocepasser 45
Sylbeocyclus 112

Tachybaptus 109, 110, 112
taczanowskii, Podiceps 93, 113–114 116,
Taeniopygia castanotis 85
Tchitrea mutata 33
Telophorus zeylonus 34
temporalis, Aegintha 127
tennenti, Cossypha natalensis 137–138
Terpsiphone nigriceps 27
— plumbeiceps 27
— suahelica 27
— viridis 26–30, 96
Thalassornis leuconotus 68
Thamnobia cambayensis 50
— fulicata 49
tiphia, Aegithina 160–165
torquatus, Turdus 38
toulou, Centropus 31, 169–171
Treron curvirostris 143, 144
— delalandii 35
— vernans 144
tristissima, Lonchura 128
Troglodytes troglodytes 38
Turdus libonyanus 124–126
— merula 85, 102
— nigrilorum 124–126
— olivaceus 126
— saturatus 124–126
Turdus torquatus 38
Turnix lepurana 39

umbretta, Scopus 22, 101
undatus, Lybius 86–87
undulatus, Melopsittacus 84
Uraeginthus 171–172
— angolensis 33
Uria aalge 104

vernans, Treron 144
verticalis, Nectarinia 42
Vidua amauropteryx 23–26
— chalybeata 25–26
— funerea 23–26
— nigerrima 24–26
viridis, Picus 104
viridis, Terpsiphone 26–30, 96
vittata, Oxyura 91
vulgaris, Sturnus 85

waigiuensis, Anas 102

xanthopygos, Pycnonotus 33

zeylonus, Telophorus 34
Zosterops maderaspatana 33

The
Caxton & Holmesdale Press
Sevenoaks

143
T. P.C

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

Contributors are entitled to a maximum of fifty free copies of the *Bulletin*, supplied only as specifically requested by authors. Those contributing to a meeting should hand in their MS. at that meeting; otherwise a note will be inserted mentioning the contribution.

BACK NUMBERS OF THE *BULLETIN*

Applications for back numbers which cost 5*s*. each, should be made to N. J. P. Wadley, 58 Ovington Street, London, S.W.3. Members who have back numbers of the *Bulletin*, which they no longer require are requested to send them to N. J. P. Wadley.

SUBSCRIPTION TO *BULLETIN*

The *Bulletin* may be purchased by non-members annually for 40*s*. (payable in advance) or per copy 5*s*., payable to the Hon. Treasurer, P. Tate, 4 Broad Street Place, London, E.C.2

CORRESPONDENCE

Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1962

18th December.

Published by the BRITISH ORNITHOLOGISTS' CLUB and printed by
The Caxton & Holmesdale Press, South Park, Sevenoaks, Kent.

1963-64
2
143 CO|E